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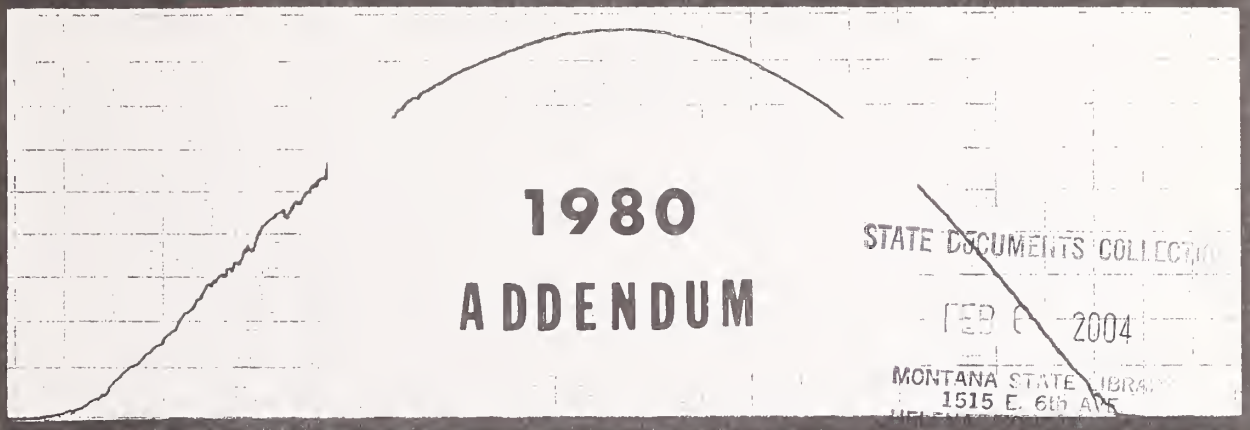

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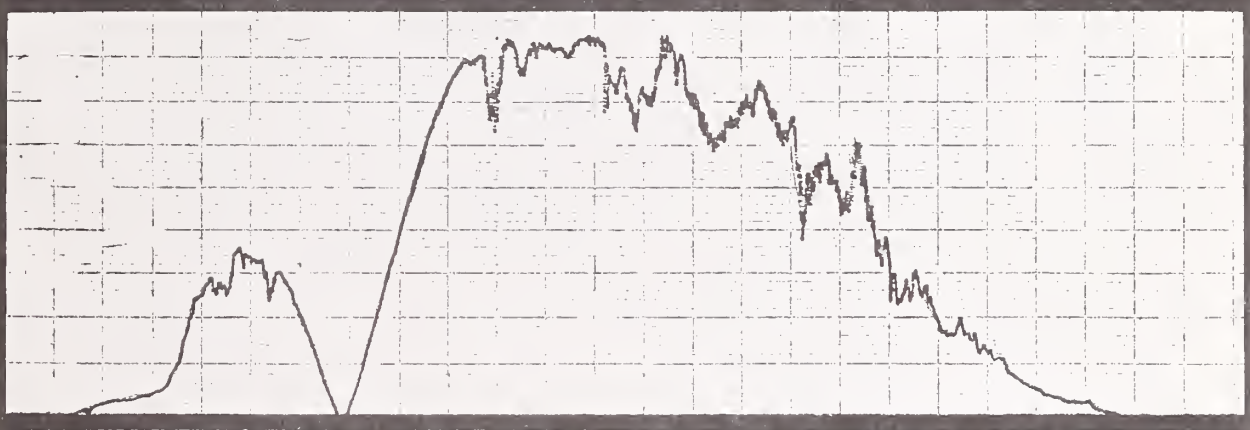

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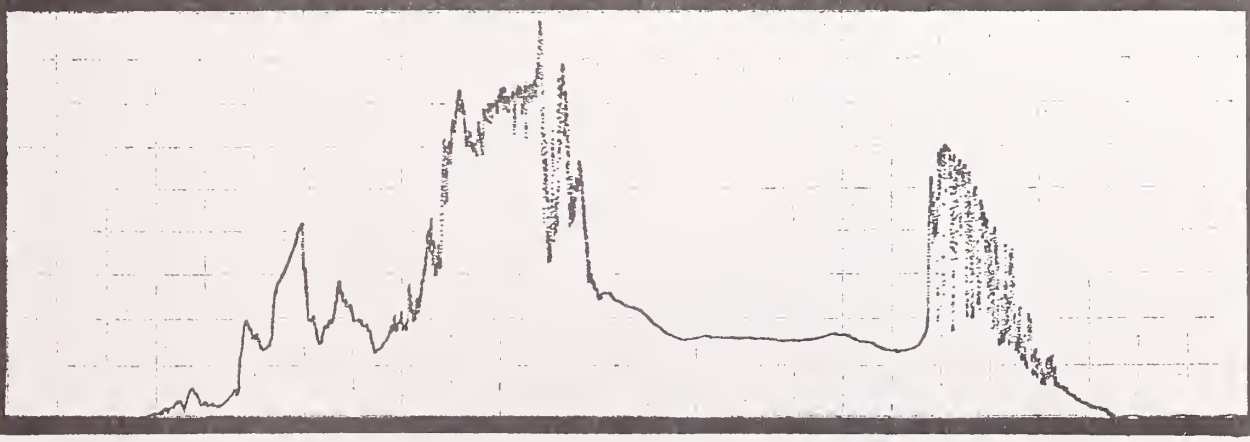

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COVER

Reproduced on the cover are strip chart records of solar radiation. The upper curve illustrates a clear day record and the lower curve was taken on a partially cloudy day. The center chart records the total eclipse on February 26, 1979.

MONTANA SOLAR DATA MANUAL

1980 ADDENDUM

April 1981

compiled by
Charless W. Fowlkes

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Bozeman, MT 59715

supported by
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
ALTERNATIVE RENEWABLE ENERGY SOURCES PROGRAM
32 South Ewing
Helena, MT 59620

John Orndorff, Bureau Chief

Grant No. 142-801

INTRODUCTION

This 1980 ADDENDUM contains solar radiation data gathered during 1980 from the Montana 30-station network. This 1980 ADDENDUM contains only the data tables and must be used in conjunction with the June 1979 edition of the MONTANA SOLAR DATA MANUAL. The MANUAL explains the source, accuracy and use of the solar data and includes supplementary material on climate, solar design and economics. A current list of volunteers at the 30 recording stations and the 18 manual stations is shown on pages 2 and 3. The continued support of these volunteers is crucial to the success of this measurement program. A map showing the locations of the recording stations is shown on page 5.

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List of Volunteers 2
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STATIONS WITH CONTINUOUS RECORDERS

Location	School	Volunteer	Year
Anaconda	Anaconda	Mike Knutson	1979-81
		Tom Facey	1978-79
Billings	Billings Sr. H.S.	Mike Jablin	1977-81
Bozeman	Bozeman Sr. H.S.	Roscoe Montgomery	1977-81
Browning	Browning H.S.	Jim Prestbo	1977-81
Butte	Butte H.S.	John Giop	1978-81
Choteau	Choteau H.S.	Norman Kamrud	1978-81
Colstrip	Colstrip H.S.	Kelly Taylor	1979-81
		Dave Bowser	1977-79
Dillon	Beaverhead Co. H.S.	William Mular	1977-81
Ennis	Madison Val. Cons. H.S.	Jay Willett	1979-81
		Orville Hess	1978-79
Fort Benton	Fort Benton H.S.	A. Wm. Kindzerski	1979-81
		T. Daniel Gillen	1978-79
Glasgow	Glasgow H.S.	Norman Girard	1977-81
Glendive	Dawson Co. H.S.	Richard Lindgren	1978-81
Great Falls	C. M. Russell H.S.	W. Gary Shelden	1977-81
Hamilton	Hamilton H.S.	William Delaney	1977-81
Harlowton	Harlowton H.S.	Scott Dubbs	1980-81
		Milo Coladonato	1978-80
Havre	Havre H.S.	Marvin Gunnarson	1979-81
		Avon Whitehead	1977-79
Helena	Helena H.S.	Jim Haslip	1977-81
Jordan	Garfield Co. H.S.	Michael G. Mansfield	1979-81
Kalispell	Flathead H.S.	Gary Freebury	1977-81
Lewistown	Fergus H.S.	Howard Cooper	1977-81
Libby	Libby H.S.	Mike Funk	1977-81
Livingston	Park Sr. H.S.	Ben Williams	1978-81
Miles City	Custer Co. H.S.	Otto Neuhardt	1977-81
		John Potts	1977-81
Missoula	Hellgate H.S.	Norman Jacobson	1977-81
Plentywood	Plentywood H.S.	Harold Gackle	1978-81
Polson	Polson H.S.	Dan O'Brien	1979-81
		Ted Macy	1977-79
Red Lodge	Red Lodge H.S.	Bob Holmen	1978-81
Sidney	Sidney Sr. H.S.	Dan Scow	1980-81
		Gene Krueger	1978-80
Thompson Falls	Thompson Falls	Stuart Kilgore	1980-81
		Walter Clark	1978-79
West Yellowstone	West Yellowstone H.S.	Scott Carsley	1978-81

STATIONS WITH MANUAL RECORDERS

Location	School	Volunteer	Year
Baker	Baker H.S.	Max Mueller	1978-81
Big Timber	Sweetgrass Co. H.S.	Dick Willems	1977-78
Billings	Billings West H.S.	Gerald Raab	1978-81
Boulder	Jefferson H.S.	Mike Myrhow	1978-81
Broadus	Powder River Co. H.S.	Henry Eslinger	1977-81
Chester	Chester H.S.	Marvin Krook	1977-80
Chinook	Chinook H.S.	Gail Swant	1977-78
Circle	Circle H.S.	Robert Fitzgerald	1977-79
Columbus	Columbus H.S.	Waymoth Fitzgerald, Jr.	1977-78
Conrad	Conrad H.S.	James Guthrie	1978-80
Culbertson	Culbertson H.S.	Larry Hyslop	1978-79
Deer Lodge	Powell Co. H.S.	Gary Swant	1977-80
Ekalaka	Carter Co. H.S.	Pat Vaskey Jane Frye	1979-81 1977-79
Eureka	Lincoln Co. H.S.	Neil W. Nelson C. W. Calvert	1979-80 1979
Forsyth	Forsyth H.S.	Eli Urbaniak	1978-79
Great Falls	East Jr. H.S.	John Chase	1979
Hardin	Hardin H.S.	Bonnie Pluhar Roland Croghan	1978 1977-78
Harlem	Harlem H.S.	G. Daniel McNeill	1978-79
Hobson	Hobson H.S.	Rick McIntyre	1977-81
Malta	Malta H.S.	Steve Schumacher Jeffrey Bredeson	1978-81 1977-78
Missoula	Sentinel H.S.	Lyle Leischner Ronald Perrin	1979-81 1978-79
Roundup	Roundup H.S.	Jim Schladweiler	1977-81
Scobey	Scobey H.S.	Dee Black	1978-79
Superior	Superior H.S.	Clark Conrow	1977-79
Townsend	Broadwater Co. H.S.	William Alley	1977-81
Whitefish	Whitefish H.S.	Bruce Tannohill	1978-81
White Sulphur Springs	Wh. Sulph. Spgs. H.S.	Ken Marks Connie Perkins	1978-81 1977-78
Winnett	Winnett H.S.	Frank Witter	1977-78
Wolf Point	Wolf Point H.S.	Arthur Sikkink	1977-80

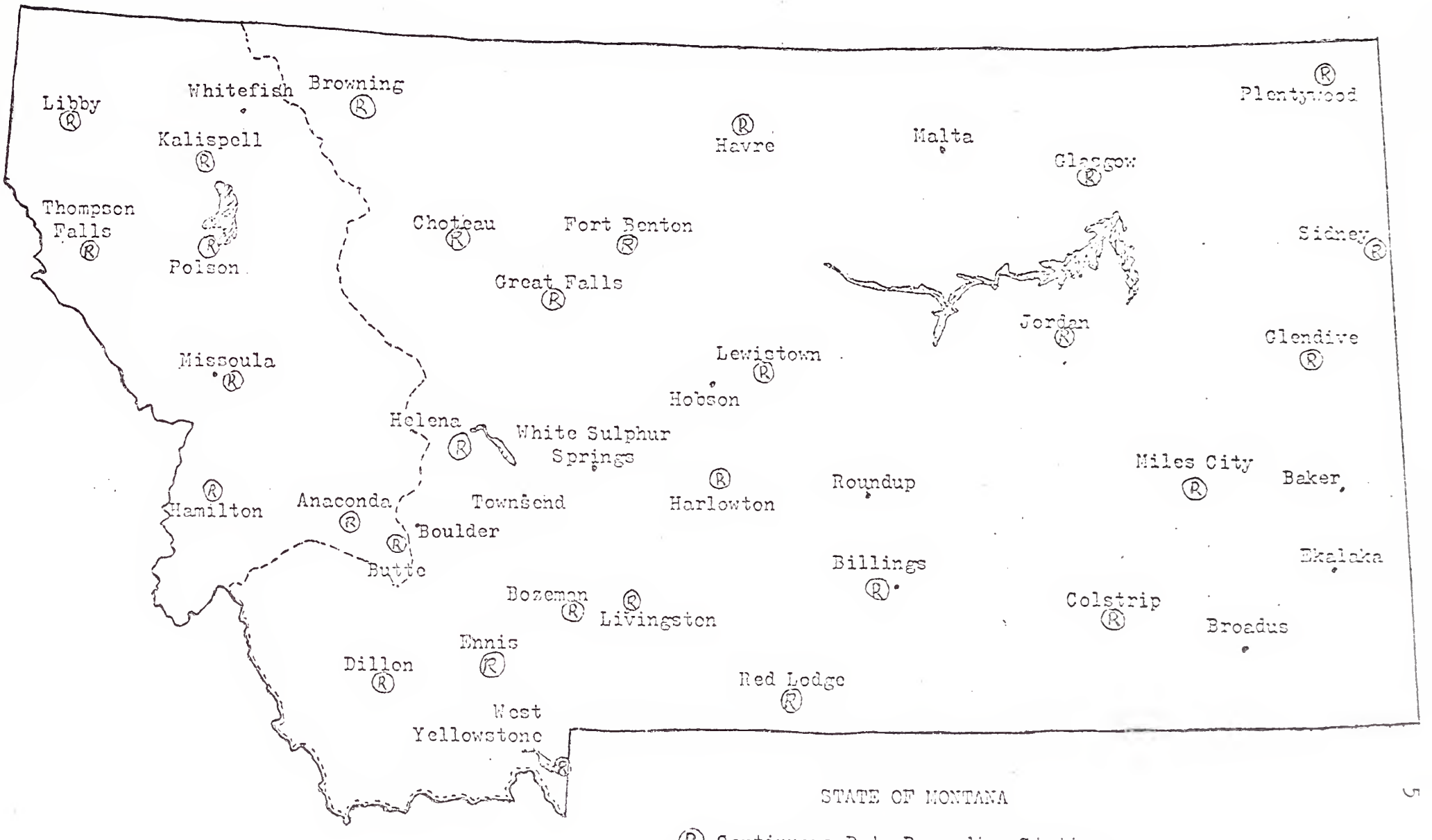
AVERAGE SOLAR RADIATION DURING HEATING SEASON

January 1 thru April 30 - October 1 thru December 31

Location	1977	1978	1979	1980	Average
Anaconda	—	((3.62))	3.27	3.33	(3.41)
Billings	(4.29)	3.73	3.92	3.62	3.89
Bozeman	3.57	3.74	3.66	3.54	3.63
Browning	((3.64))	(3.95)	((4.43))	((4.23))	((4.06))
Butte	(3.95)	3.47	3.72	3.54	3.67
Choteau	—	(3.59)	3.88	3.49	3.65
Colstrip	((4.94))	((4.36))	(3.58)	3.49	(4.09)
Dillon	3.91	4.29	4.27	3.88	4.09
Ennis	—	(4.25)	3.90	((3.77))	(3.97)
Fort Benton	—	(3.44)	3.27	3.17	3.29
Glasgow	3.90	3.74	3.79	3.80	3.81
Glendive	3.62	(3.50)	((3.68))	(3.63)	(3.61)
Great Falls	3.93	3.68	3.71	3.39	3.68
Hamilton	(3.41)	3.23	3.32	3.29	3.31
Harlowton	(4.17)	((4.09))	(4.00)	(3.64)	(3.98)
Havre	(3.95)	3.43	3.66	3.33	3.59
Helena	3.62	3.73	3.78	3.40	3.63
Jordan	—	((3.00))	3.67	4.05	(3.57)
Kalispell	(3.28)	3.07	2.74	2.93	3.00
Lewistown	(4.08)	(4.05)	3.96	3.77	3.97
Libby	((3.68))	(2.99)	2.71	2.54	(2.98)
Livingston	—	((4.21))	(3.40)	(3.28)	(3.63)
Miles City	4.05	3.79	4.02	3.81	3.92
Missoula	3.30	3.16	2.95	2.77	3.05
Plentywood	—	(3.59)	3.60	3.84	3.68
Polson	(3.29)	3.11	2.81	2.79	3.00
Red Lodge	—	(3.98)	4.06	3.88	3.97
Sidney	—	((3.49))	3.66	(3.59)	(3.58)
Thompson Falls	—	(2.92)	((3.35))	2.66	(2.98)
West Yellowstone	(4.14)	3.75	(4.08)	3.47	3.86

Footnote:

No parenthesis - over 80% data, ( ) - 60% to 80% data, (( )) - less than 60% data


Libby
Whitefish
Browning
Kalispell
Havre
Malta
Glasgow
Plentywood
Thompson Falls
Polson
Choteau
Fort Benton
Great Falls
Sidney
Jordan
Glendive
Missoula
Lewistown
Hobson
Helena
White Sulphur Springs
Miles City
Baker
Hamilton
Anaconda
Townsend
Harlowton
Roundup
Boulder
Butte
Billings
Ekalaka
Bozeman
Livingston
Colstrip
Broadus
Ennis
Dillon
Red Lodge
West Yellowstone
STATE OF MONTANA
Continuous Data Recording Station
Manual Data Stations
Continental Divide

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1980 SOLAR DATA - WEEKLY AVERAGES

alphabetically by station

NOTE: The solar radiation values presented in these tables were all measured on a surface tilted 60° up from the horizontal and facing due south. Units are kilowatt hours per square meter per day.

The solar data tables flag lost data with parenthesis placed around the daily average. These parenthesis indicated that at least one day of data was missing in the averaging period.

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.85)	72	57	42	28	26	19	13	8	0	0	0	0
JAN 6	1.40	83	48	26	19	10	10	7	5	3	0	0	0
JAN 13	2.87	90	70	62	56	48	39	29	20	12	0	0	0
JAN 20	3.43	96	90	83	72	59	54	47	36	13	0	0	0
JAN 27	(5.00)	99	97	93	91	87	83	78	64	40	7	0	0
FEB 3	(3.04)	77	67	63	58	56	40	27	25	17	0	0	0
FEB 10	2.81	92	80	57	50	43	33	27	22	15	1	0	0
FEB 17	2.92	94	82	60	45	32	30	19	17	10	6	3	0
FEB 24	3.62	93	83	66	58	48	42	31	20	12	4	0	0
MAR 2	2.47	89	62	47	34	23	13	8	5	4	0	0	0
MAR 9	3.82	96	87	78	67	59	48	29	19	14	6	0	0
MAR 16	3.89	95	85	71	62	52	45	28	18	12	3	2	0
MAR 23	4.42	97	90	76	67	58	47	33	24	18	6	0	0
MAR 30	2.93	94	75	53	34	23	11	8	5	5	5	2	0
APR 6	(4.36)	96	82	74	66	56	45	37	23	14	2	0	0
APR 13	5.95	97	93	89	84	78	69	60	50	32	3	2	0
APR 20	4.67	93	87	79	71	65	51	36	28	15	0	0	0
APR 27	3.75	88	75	69	62	46	37	27	19	9	0	0	0
MAY 4	3.16	75	59	54	45	37	29	26	21	13	0	0	0
MAY 11	3.74	90	79	69	59	51	39	28	22	13	0	0	0
MAY 18	3.50	87	71	61	50	35	26	19	14	1	0	0	0
MAY 25	(1.72)	65	45	22	7	0	0	0	0	0	0	0	0
JUN 1													
JUN 8	(3.83)	93	73	63	50	46	31	22	15	0	0	0	0
JUN 15	3.83	92	83	72	61	43	30	22	18	6	0	0	0
JUN 22	4.30	91	83	72	63	47	35	28	15	4	0	0	0
JUN 29	3.65	92	78	63	52	46	35	20	10	1	0	0	0
JUL 6	4.25	92	77	72	64	57	47	32	19	3	0	0	0
JUL 13	4.84	94	81	73	62	56	49	39	31	6	1	0	0
JUL 20	(5.69)	96	93	89	81	74	61	52	34	2	0	0	0
JUL 27													
AUG 3	(5.04)	96	92	85	75	65	49	41	24	5	0	0	0
AUG 10	4.15	93	84	78	66	57	40	28	17	5	0	0	0
AUG 17	4.03	94	83	76	67	54	47	33	18	7	3	0	0
AUG 24	5.62	97	94	90	84	76	66	51	38	24	1	0	0
AUG 31	4.94	96	90	82	78	68	64	53	42	29	2	0	0
SEP 7	(3.57)	91	78	72	58	46	40	34	26	11	0	0	0
SEP 14													
SEP 21	(5.88)	98	96	91	89	82	74	63	46	23	12	0	0
SEP 28	5.78	98	96	91	88	82	72	63	49	37	5	0	0
OCT 5	6.08	98	96	94	89	86	77	67	56	39	7	0	0
OCT 12	2.60	67	52	48	45	39	33	25	12	4	4	2	0
OCT 19	3.66	91	77	70	56	49	43	35	25	16	5	0	0
OCT 26	3.78	95	90	84	76	70	63	49	43	24	7	0	0
NOV 2	2.91	78	68	65	60	54	47	42	34	19	5	0	0
NOV 9	2.90	78	55	52	49	43	41	35	27	17	0	0	0
NOV 16	(2.77)	94	77	61	56	46	40	35	29	16	0	0	0
NOV 23	(2.73)	92	80	69	64	56	41	19	12	4	0	0	0
NOV 30	1.66	68	55	39	32	22	19	13	8	3	3	0	0
DEC 7	3.08	96	89	81	68	57	48	33	25	12	0	0	0
DEC 14	1.96	77	58	53	44	30	25	20	9	2	0	0	0
DEC 21	1.36	64	51	41	30	23	15	6	4	0	0	0	0
DEC 28	(2.81)	91	87	74	67	54	41	41	20	14	0	0	0

SOLAR RADIATION DATA for: BILLINGS,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.55)	82	65	57	48	44	38	31	21	10	0	0	0
JAN 6	(1.96)	81	55	42	35	31	19	14	11	6	0	0	0
JAN 13	3.00	91	69	61	54	50	41	38	24	15	0	0	0
JAN 20	3.76	97	93	82	72	64	53	48	36	20	4	0	0
JAN 27	4.88	98	97	91	85	80	66	51	34	18	1	0	0
FEB 3	2.45	72	63	51	42	36	27	21	19	10	2	0	0
FEB 10	2.83	85	63	42	32	26	23	20	17	10	3	0	0
FEB 17	3.72	94	84	71	58	53	46	40	36	28	7	0	0
FEB 24	4.48	84	81	77	71	63	52	43	35	21	10	0	0
MAR 2	3.37	95	73	54	49	39	28	25	16	10	3	0	0
MAR 9	3.59	92	67	57	50	48	44	36	28	17	4	0	0
MAR 16	5.11	97	89	83	73	64	56	46	34	22	9	0	0
MAR 23	4.58	94	83	72	65	61	52	43	28	15	3	0	0
MAR 30	2.79	74	59	45	31	25	20	15	14	11	3	0	0
APR 6	5.06	96	91	86	79	71	61	50	40	28	6	0	0
APR 13	5.61	96	90	82	76	66	56	51	41	28	1	0	0
APR 20	(6.13)	98	94	90	87	81	74	68	52	25	0	0	0
APR 27	5.43	96	93	88	82	74	67	60	45	22	0	0	0
MAY 4	4.21	92	78	66	61	56	41	34	24	8	0	0	0
MAY 11	5.45	95	92	87	79	70	60	49	31	12	1	0	0
MAY 18	5.32	95	92	88	79	71	57	46	30	7	0	0	0
MAY 25	3.69	91	79	69	56	42	32	24	16	4	0	0	0
JUN 1	4.40	92	83	73	62	56	48	38	20	5	0	0	0
JUN 8	5.15	94	93	89	84	75	60	46	22	0	0	0	0
JUN 15	4.68	95	90	84	75	67	51	42	19	0	0	0	0
JUN 22	5.38	95	92	89	84	76	65	53	28	0	0	0	0
JUN 29	4.61	91	83	78	71	67	58	49	23	0	0	0	0
JUL 6	5.05	94	90	86	79	70	60	46	26	0	0	0	0
JUL 13	5.11	95	91	87	83	76	66	56	33	0	0	0	0
JUL 20	5.23	96	93	91	84	74	65	46	21	0	0	0	0
JUL 27	5.35	95	91	88	82	71	63	52	28	0	0	0	0
AUG 3	5.11	94	90	85	80	75	65	55	41	7	1	0	0
AUG 10	4.41	93	77	70	64	58	47	39	25	1	0	0	0
AUG 17	3.98	93	85	70	62	50	38	29	16	3	0	0	0
AUG 24	5.17	97	93	85	79	70	61	52	37	13	0	0	0
AUG 31	5.80	97	95	90	85	79	71	60	45	24	4	0	0
SEP 7	3.41	89	75	65	58	48	45	29	18	9	0	0	0
SEP 14	4.41	87	78	73	63	57	48	40	29	22	2	1	0
SEP 21	4.96	96	91	81	75	69	56	47	39	25	4	0	0
SEP 28	(5.60)	97	94	91	84	74	64	48	34	19	3	0	0
OCT 5	(6.38)	99	96	93	91	85	77	67	55	30	4	0	0
OCT 12	(3.17)	67	60	56	49	46	41	32	22	10	0	0	0
OCT 19	4.42	84	78	72	69	64	56	49	35	17	1	0	0
OCT 26	3.37	71	66	62	54	47	41	35	25	9	0	0	0
NOV 2	3.22	91	77	60	51	39	35	32	24	17	0	0	0
NOV 9	2.39	75	51	42	36	31	29	21	15	6	0	0	0
NOV 16	3.15	84	75	64	56	47	38	22	17	10	0	0	0
NOV 23	2.97	86	69	60	54	44	38	25	14	7	0	0	0
NOV 30	(1.30)	65	43	34	26	12	4	4	0	0	0	0	0
DEC 7	(3.49)	95	93	78	72	58	50	33	22	0	0	0	0
DEC 14	1.49	66	47	38	27	22	16	6	0	0	0	0	0
DEC 21	1.23	69	45	37	29	20	17	8	0	0	0	0	0
DEC 28	(3.42)	97	93	90	73	69	62	46	17	6	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(.82)	55	22	8	0	0	0	0	0	0	0	0	0
JAN 6	1.99	74	60	45	35	23	20	16	16	7	0	0	0
JAN 13	2.76	85	58	45	41	37	32	28	19	13	1	0	0
JAN 20	3.76	97	89	79	76	71	60	42	24	15	1	0	0
JAN 27	4.55	97	90	82	68	65	60	49	42	25	10	0	0
FEB 3	2.93	88	59	51	45	40	37	28	17	10	8	2	0
FEB 10	(2.47)	93	73	36	29	22	19	12	11	7	2	0	0
FEB 17													
FEB 24													
MAR 2	(3.19)	96	87	68	43	34	27	9	4	0	0	0	0
MAR 9	3.61	95	82	68	52	40	38	26	17	11	8	4	0
MAR 16	5.22	97	91	83	75	62	56	46	35	29	18	3	0
MAR 23	4.95	96	91	79	70	60	51	39	31	25	10	0	0
MAR 30	4.49	95	80	73	64	48	41	32	26	19	13	1	0
APR 6	4.91	96	91	81	69	58	49	40	29	18	4	0	0
APR 13	5.59	96	92	88	82	74	61	53	44	26	0	0	0
APR 20	5.31	97	92	88	79	70	59	46	32	16	0	0	0
APR 27	4.47	88	80	73	69	61	50	41	26	6	0	0	0
MAY 4	(4.10)	95	80	73	61	54	41	33	21	2	0	0	0
MAY 11	4.72	92	84	75	66	59	52	39	28	15	4	0	0
MAY 18	4.27	92	82	69	59	52	42	28	18	4	0	0	0
MAY 25	3.25	82	68	56	47	33	29	15	3	0	0	0	0
JUN 1	3.96	92	82	65	53	40	34	26	14	3	0	0	0
JUN 8	4.45	93	85	77	67	59	44	28	16	0	0	0	0
JUN 15	4.72	89	79	74	68	61	48	36	18	0	0	0	0
JUN 22	4.85	93	86	77	68	61	51	31	14	1	0	0	0
JUN 29	4.07	90	73	60	52	47	41	27	15	3	0	0	0
JUL 6	5.14	95	91	86	80	70	59	45	18	0	0	0	0
JUL 13	4.77	94	88	80	77	63	53	41	17	0	0	0	0
JUL 20	5.47	96	92	88	82	75	65	51	28	0	0	0	0
JUL 27	5.25	95	92	85	78	72	65	54	35	0	0	0	0
AUG 3	(5.45)	96	92	87	82	76	66	53	39	8	0	0	0
AUG 10	5.13	92	80	78	73	70	61	51	39	12	0	0	0
AUG 17	4.52	93	78	72	66	60	49	43	32	21	4	0	0
AUG 24	4.81	95	87	80	70	60	53	45	37	19	1	0	0
AUG 31	(5.88)	97	94	90	79	70	61	53	44	29	7	0	0
SEP 7	3.02	81	66	58	50	38	33	30	21	8	0	0	0
SEP 14	3.03	87	72	55	39	34	22	14	10	7	3	0	0
SEP 21	5.16	96	89	82	80	71	63	58	44	26	9	0	0
SEP 28	5.84	98	94	89	82	75	67	57	47	27	3	0	0
OCT 5	6.42	98	96	94	89	84	75	67	55	36	3	0	0
OCT 12	2.80	62	46	40	39	37	34	29	23	19	3	0	0
OCT 19	4.51	90	80	75	70	66	55	47	36	22	1	0	0
OCT 26	3.19	77	68	58	53	44	37	27	20	7	0	0	0
NOV 2	2.27	76	57	49	41	34	30	18	9	6	2	0	0
NOV 9	3.00	67	58	47	42	40	33	30	26	19	5	0	0
NOV 16	2.63	80	55	50	47	39	32	26	19	12	0	0	0
NOV 23	2.75	85	73	64	52	42	30	21	12	0	0	0	0
NOV 30	2.26	86	74	63	51	34	26	24	19	14	0	0	0
DEC 7	(2.72)	82	76	66	60	52	34	24	7	0	0	0	0
DEC 14	1.66	75	58	43	29	22	16	6	0	0	0	0	0
DEC 21	1.25	62	53	42	34	25	19	16	6	0	0	0	0
DEC 28	(2.60)	91	74	55	48	43	36	22	6	0	0	0	0

SOLAR RADIATION DATA for: BROWNING,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1													
JAN 6													
JAN 13													
JAN 20													
JAN 27													
FEB 3													
FEB 10													
FEB 17													
FEB 24													
MAR 2	(4.32)	97	92	86	76	63	45	35	25	19	12	0	0
MAR 9	4.39	94	84	73	61	57	47	41	35	25	17	1	0
MAR 16	5.00	95	90	82	74	65	58	50	41	28	12	0	0
MAR 23	(3.56)	95	81	65	50	37	25	20	14	9	8	4	0
MAR 30													
APR 6													
APR 13													
APR 20	(5.84)	97	94	90	78	71	59	48	41	18	0	0	0
APR 27	5.25	93	86	79	72	66	55	46	37	24	4	0	0
MAY 4	4.42	91	79	61	55	48	42	33	25	6	0	0	0
MAY 11	5.83	96	93	87	82	73	63	54	38	6	0	0	0
MAY 18	3.60	75	64	57	51	41	35	30	18	0	0	0	0
MAY 25	(3.15)	79	66	51	37	27	17	16	9	4	0	0	0
JUN 1	3.11	85	68	51	39	22	14	13	6	0	0	0	0
JUN 8	(5.71)	96	93	88	82	75	68	53	37	0	0	0	0
JUN 15													
JUN 22													
JUN 29													
JUL 6													
JUL 13													
JUL 20													
JUL 27													
AUG 3													
AUG 10													
AUG 17													
AUG 24													
AUG 31													
SEP 7													
SEP 14	(4.38)	95	81	71	62	55	48	37	30	20	0	0	0
SEP 21	(5.10)	88	81	77	72	67	62	57	44	31	0	0	0
SEP 28	5.55	97	94	90	84	79	71	61	47	31	0	0	0
OCT 5	(6.32)	99	97	93	89	82	75	68	57	34	0	0	0
OCT 12	(3.22)	67	63	61	58	51	49	38	27	18	0	0	0
OCT 19	4.45	92	86	75	71	63	55	47	41	26	4	0	0
OCT 26	3.31	93	79	69	59	52	40	31	17	6	0	0	0
NOV 2	3.77	93	84	69	63	58	53	46	38	17	0	0	0
NOV 9	3.82	85	74	70	68	60	53	46	34	17	0	0	0
NOV 16	(2.93)	86	80	79	66	57	47	30	21	6	0	0	0
NOV 23													
NOV 30	(1.55)	75	48	31	21	11	3	0	0	0	0	0	0
DEC 7	(5.05)	99	97	94	90	90	79	66	43	9	0	0	0
DEC 14													
DEC 21													
DEC 28													

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM) >.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.73)	77	65	47	37	24	12	2	0	0	0	0	0
JAN 6	2.29	90	77	63	53	38	32	24	15	7	7	0	0
JAN 13	3.21	90	76	67	61	56	49	37	25	13	0	0	0
JAN 20	3.78	96	91	86	79	69	62	45	37	19	7	0	0
JAN 27	4.52	95	90	82	76	70	60	50	41	28	9	0	0
FEB 3	2.76	87	67	61	51	36	23	18	14	10	0	0	0
FEB 10	3.19	92	74	60	51	42	30	22	17	14	5	0	0
FEB 17	3.44	95	83	73	64	55	43	35	29	18	6	0	0
FEB 24	4.24	95	85	71	65	56	50	37	27	21	9	0	0
MAR 2	2.65	95	78	51	35	26	18	7	4	2	0	0	0
MAR 9	3.27	95	82	65	51	35	33	25	15	9	4	0	0
MAR 16	3.71	95	85	68	55	41	29	21	13	6	4	0	0
MAR 23	4.36	96	89	76	69	58	47	36	25	18	4	0	0
MAR 30	3.13	94	78	46	31	28	19	14	9	5	1	0	0
APR 6	4.37	94	82	68	58	50	43	32	28	18	10	0	0
APR 13	5.98	97	95	89	85	78	69	60	46	31	3	0	0
APR 20	4.72	95	88	79	73	64	53	44	32	16	0	0	0
APR 27	4.06	91	72	65	59	50	40	34	26	14	0	0	0
MAY 4	3.59	87	71	58	50	44	34	24	16	6	0	0	0
MAY 11	4.26	91	80	71	62	55	42	33	21	9	2	0	0
MAY 18	4.01	88	78	67	59	54	41	29	19	4	0	0	0
MAY 25	3.07	81	67	47	41	30	17	7	5	1	0	0	0
JUN 1	3.19	92	76	60	44	24	16	6	4	0	0	0	0
JUN 8	3.60	93	87	81	57	52	42	29	14	0	0	0	0
JUN 15	4.17	92	78	71	64	56	48	35	16	1	0	0	0
JUN 22	4.22	91	85	74	68	56	46	32	13	1	0	0	0
JUN 29	4.18	92	82	68	62	56	46	33	16	1	0	0	0
JUL 6	4.50	94	90	79	72	66	53	40	17	0	0	0	0
JUL 13	4.69	93	88	81	70	57	46	33	17	1	0	0	0
JUL 20	5.47	96	93	89	84	73	61	45	24	0	0	0	0
JUL 27	(5.85)	96	94	89	85	77	70	59	36	0	0	0	0
AUG 3	(5.04)	95	91	85	78	74	66	51	36	0	0	0	0
AUG 10	5.11	95	91	86	79	70	57	47	39	19	0	0	0
AUG 17	4.40	92	85	77	69	63	50	40	24	11	1	0	0
AUG 24	5.80	97	93	91	84	76	68	54	45	27	0	0	0
AUG 31	5.16	94	87	83	77	73	65	52	41	26	1	0	0
SEP 7	3.13	80	68	62	54	47	34	23	21	7	0	0	0
SEP 14	3.64	86	73	63	57	47	35	27	22	17	2	0	0
SEP 21	5.34	98	93	87	80	70	60	49	40	30	10	0	0
SEP 28	5.87	98	95	89	83	78	71	61	47	31	8	0	0
OCT 5	6.42	98	97	94	89	84	77	69	57	38	4	0	0
OCT 12	(2.92)	71	53	44	43	39	33	28	21	16	6	0	0
OCT 19	4.11	95	86	71	64	52	44	37	32	23	7	0	0
OCT 26	3.67	94	85	80	71	67	60	49	36	22	5	0	0
NOV 2	2.67	84	69	60	55	43	38	33	23	12	5	0	0
NOV 9	3.59	84	75	69	67	57	51	45	40	26	5	0	0
NOV 16	3.23	96	86	73	60	47	37	29	22	12	2	0	0
NOV 23	3.29	95	90	80	70	58	50	44	25	3	0	0	0
NOV 30	2.54	86	73	61	49	41	33	25	20	8	0	0	0
DEC 7	3.35	97	89	83	73	58	43	27	17	10	0	0	0
DEC 14	2.10	77	64	56	49	40	20	9	7	5	0	0	0
DEC 21	.84	40	29	14	12	12	7	7	2	0	0	0	0
DEC 28	(3.24)	66	63	61	58	53	44	37	26	14	0	0	0

SOLAR RADIATION DATA for: CHOTEAU,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.94)	77	75	70	66	58	52	37	19	0	0	0	0
JAN 6	1.97	89	66	49	42	30	17	13	6	3	0	0	0
JAN 13	3.54	88	79	75	70	63	56	47	32	12	0	0	0
JAN 20	2.29	80	68	62	45	37	32	14	9	2	0	0	0
JAN 27	4.62	96	90	82	76	72	61	55	43	28	1	0	0
FEB 3	3.08	86	71	62	59	49	37	33	26	16	2	0	0
FEB 10	2.63	80	63	45	37	32	25	12	12	7	3	0	0
FEB 17	(3.86)	95	84	71	57	49	46	41	30	26	8	3	0
FEB 24													
MAR 2	(4.32)	97	89	81	73	66	58	47	28	21	7	0	0
MAR 9	4.57	95	76	70	64	59	52	43	35	21	9	0	0
MAR 16	4.55	93	79	70	65	57	52	46	41	24	5	0	0
MAR 23	4.31	95	89	76	66	53	43	30	26	19	8	4	0
MAR 30	3.95	91	79	57	49	40	33	26	22	18	11	0	0
APR 6	4.79	95	86	70	64	57	44	34	25	17	6	0	0
APR 13	5.84	97	92	87	80	74	64	56	39	26	3	0	0
APR 20	5.42	95	88	83	75	66	60	50	40	12	0	0	0
APR 27	5.13	96	89	81	73	64	55	43	27	10	0	0	0
MAY 4	4.33	91	78	66	57	49	42	33	23	6	3	0	0
MAY 11	5.82	96	92	89	83	77	69	53	35	10	0	0	0
MAY 18	3.39	81	70	58	48	38	28	22	10	2	0	0	0
MAY 25	3.78	91	80	72	61	50	35	23	12	2	0	0	0
JUN 1	4.02	91	74	67	58	45	33	23	15	1	0	0	0
JUN 8	4.43	95	87	79	71	53	42	30	18	0	0	0	0
JUN 15	5.23	95	91	86	80	67	54	38	19	0	0	0	0
JUN 22	4.24	93	79	70	62	52	42	30	17	4	0	0	0
JUN 29	5.32	95	90	85	77	69	58	40	22	3	1	0	0
JUL 6	5.27	96	91	87	81	70	55	39	18	0	0	0	0
JUL 13	4.64	93	85	76	67	57	42	30	14	1	0	0	0
JUL 20	5.42	96	91	85	80	73	64	50	30	0	0	0	0
JUL 27	(6.02)	96	94	90	84	80	71	55	42	0	0	0	0
AUG 3													
AUG 10													
AUG 17	(3.59)	83	72	66	56	51	39	31	21	15	2	0	0
AUG 24	5.65	97	94	90	85	76	68	54	40	21	0	0	0
AUG 31	5.14	97	94	89	82	73	63	50	37	20	2	0	0
SEP 7	3.74	91	80	72	57	50	40	34	28	17	0	0	0
SEP 14	3.51	82	63	59	56	52	42	34	25	15	3	0	0
SEP 21	4.92	88	79	75	73	69	61	54	45	26	4	0	0
SEP 28	5.51	97	92	88	82	78	69	60	45	32	5	0	0
OCT 5	6.24	98	96	93	89	83	78	69	56	34	2	0	0
OCT 12	2.55	75	61	54	49	38	30	21	15	8	0	0	0
OCT 19	4.56	96	90	84	75	69	63	49	41	27	4	0	0
OCT 26	2.85	87	71	62	53	49	42	29	21	8	0	0	0
NOV 2	3.10	85	67	60	56	45	43	32	19	11	5	0	0
NOV 9	3.48	82	74	71	67	60	51	36	25	13	0	0	0
NOV 16	2.95	90	77	70	67	60	50	40	30	4	0	0	0
NOV 23	3.01	91	84	73	67	63	50	36	17	0	0	0	0
NOV 30	1.14	30	22	14	11	11	11	9	5	0	0	0	0
DEC 7	1.95	69	60	54	42	30	27	14	9	4	0	0	0
DEC 14	.72	36	32	29	24	12	7	4	0	0	0	0	0
DEC 21	1.17	53	35	32	25	25	21	9	6	0	0	0	0
DEC 28	(1.99)	60	54	42	35	29	25	22	16	0	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.31)	59	57	51	48	41	30	16	6	0	0	0	0
JAN 6	2.12	80	64	51	41	31	22	8	3	0	0	0	0
JAN 13	3.12	92	77	72	60	52	46	34	11	0	0	0	0
JAN 20	2.51	89	76	69	56	41	35	25	13	2	0	0	0
JAN 27	4.05	97	91	89	76	66	55	41	19	1	0	0	0
FEB 3	(2.00)	64	52	43	36	26	22	17	5	0	0	0	0
FEB 10	(2.16)	79	37	29	28	26	21	19	7	0	0	0	0
FEB 17	(2.66)	82	57	49	41	33	27	18	13	9	4	0	0
FEB 24	4.33	84	81	74	66	56	51	44	33	20	7	0	0
MAR 2	4.25	95	81	69	60	51	38	28	19	14	9	4	0
MAR 9	3.36	87	69	55	49	38	34	21	13	6	1	0	0
MAR 16	4.71	96	93	86	76	63	51	41	30	23	10	0	0
MAR 23	4.56	91	78	68	58	54	46	44	34	19	10	0	0
MAR 30	3.19	80	67	54	42	31	23	19	17	11	0	0	0
APR 6	4.40	90	74	61	53	50	46	35	25	17	3	0	0
APR 13	(5.95)	96	94	90	83	77	71	57	46	32	0	0	0
APR 20													
APR 27	(5.62)	96	91	88	83	76	70	60	44	14	0	0	0
MAY 4	4.72	94	86	75	66	58	49	38	21	2	0	0	0
MAY 11	4.38	92	86	77	66	54	40	22	14	0	0	0	0
MAY 18	4.86	94	87	79	71	59	49	37	14	0	0	0	0
MAY 25	3.69	89	73	59	55	43	28	20	11	2	0	0	0
JUN 1	4.44	92	83	75	69	60	46	31	16	3	0	0	0
JUN 8	5.41	95	92	87	81	75	63	48	24	1	0	0	0
JUN 15	4.52	91	78	73	70	54	46	28	11	0	0	0	0
JUN 22	5.42	93	90	87	83	71	59	41	17	0	0	0	0
JUN 29	5.16	94	90	85	79	70	56	40	13	1	0	0	0
JUL 6	4.87	93	84	75	69	64	55	37	18	0	0	0	0
JUL 13	5.32	94	89	85	78	72	62	44	26	4	0	0	0
JUL 20	5.56	94	91	87	82	75	65	53	28	0	0	0	0
JUL 27	(5.90)	96	93	91	87	81	74	54	29	0	0	0	0
AUG 3													
AUG 10													
AUG 17													
AUG 24	(6.36)	98	94	91	82	82	74	68	50	36	0	0	0
AUG 31	(5.64)	97	92	85	79	74	63	54	48	29	2	0	0
SEP 7	3.85	86	70	64	56	48	43	35	28	15	0	0	0
SEP 14	5.13	88	81	78	73	67	60	49	37	22	7	0	0
SEP 21	5.04	97	92	86	78	65	60	48	34	23	2	0	0
SEP 28	5.94	98	95	93	88	82	75	64	51	30	3	0	0
OCT 5	6.34	98	97	94	91	87	78	68	59	39	3	0	0
OCT 12	3.24	79	69	59	52	45	40	31	25	16	0	0	0
OCT 19	4.18	83	80	74	67	59	55	45	33	23	3	0	0
OCT 26	3.80	83	79	74	68	59	52	36	26	13	3	0	0
NOV 2	3.52	88	84	69	59	52	43	37	29	18	0	0	0
NOV 9	2.69	73	60	51	43	38	35	24	17	6	0	0	0
NOV 16	3.13	82	78	67	59	45	35	28	18	7	0	0	0
NOV 23	3.04	92	80	71	60	48	36	27	19	8	0	0	0
NOV 30	1.31	67	40	30	21	18	7	0	0	0	0	0	0
DEC 7	3.08	82	76	64	59	50	38	32	21	11	0	0	0
DEC 14	1.73	79	50	40	37	27	25	14	9	0	0	0	0
DEC 21	(1.45)	84	59	42	26	19	6	4	0	0	0	0	0
DEC 28													

SOLAR RADIATION DATA for: DILLON,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.25)	86	69	54	46	41	34	24	8	4	0	0	0
JAN 6	2.54	87	70	52	46	39	33	33	26	15	2	0	0
JAN 13	2.93	93	76	63	50	40	34	25	18	8	0	0	0
JAN 20	4.15	94	86	80	73	67	64	55	39	27	13	2	0
JAN 27	4.47	97	90	85	76	68	59	50	41	28	11	0	0
FEB 3	4.08	91	76	72	66	58	54	45	32	15	8	0	0
FEB 10	3.39	87	73	63	56	47	38	26	12	7	1	0	0
FEB 17	4.03	96	90	83	77	62	55	40	37	29	14	2	0
FEB 24	4.74	97	93	89	83	76	64	56	42	26	5	0	0
MAR 2	3.50	95	82	65	52	40	37	30	22	15	6	0	0
MAR 9	3.99	97	89	76	62	47	37	30	22	14	5	0	0
MAR 16	4.72	98	91	81	63	54	48	38	26	18	8	0	0
MAR 23	4.60	97	91	79	67	62	49	36	24	12	0	0	0
MAR 30	4.02	96	86	75	59	42	32	27	20	10	0	0	0
APR 6	4.36	92	83	70	61	57	51	40	30	23	6	0	0
APR 13	6.16	97	94	91	86	79	69	60	49	29	4	0	0
APR 20	5.61	95	92	87	81	73	70	61	48	21	3	0	0
APR 27	4.59	86	78	69	61	51	41	34	25	13	0	0	0
MAY 4	3.99	90	74	59	50	42	35	29	20	6	0	0	0
MAY 11	4.35	94	85	73	61	48	40	32	23	8	0	0	0
MAY 18	4.59	90	78	69	66	53	50	38	28	5	0	0	0
MAY 25	3.91	92	80	70	59	47	35	24	16	1	0	0	0
JUN 1	4.34	94	85	73	63	46	37	19	11	1	0	0	0
JUN 8	4.74	94	86	77	68	56	45	37	18	0	0	0	0
JUN 15	5.11	95	87	80	73	64	55	43	27	0	0	0	0
JUN 22	(4.14)	89	78	70	56	44	36	29	24	5	0	0	0
JUN 29	4.77	92	83	74	63	58	49	36	20	2	0	0	0
JUL 6	5.20	94	87	84	77	68	56	41	27	1	0	0	0
JUL 13	5.42	95	90	83	74	64	56	42	29	6	1	0	0
JUL 20	6.00	96	92	88	84	76	65	55	37	0	0	0	0
JUL 27	5.21	95	89	83	76	72	64	55	39	11	0	0	0
AUG 3	5.94	97	94	90	83	75	67	58	42	12	0	0	0
AUG 10	(6.19)	98	96	92	87	84	75	64	42	7	0	0	0
AUG 17													
AUG 24	(4.91)	96	90	82	74	63	52	43	28	15	0	0	0
AUG 31	5.19	95	88	82	76	63	52	39	29	16	0	0	0
SEP 7	3.22	82	72	66	59	45	35	28	21	11	0	0	0
SEP 14	4.73	95	90	80	75	61	51	47	32	21	3	0	0
SEP 21	5.66	97	93	88	83	79	70	60	50	35	7	2	0
SEP 28	6.21	98	96	91	89	82	77	66	51	24	1	0	0
OCT 5	6.21	98	96	94	91	85	76	65	51	30	1	0	0
OCT 12	2.95	63	50	48	46	37	32	27	21	13	2	0	0
OCT 19	(4.07)	94	83	76	69	62	51	38	26	9	2	0	0
OCT 26	3.93	92	83	75	71	64	55	41	30	12	0	0	0
NOV 2	3.59	91	78	72	62	57	53	42	36	20	2	0	0
NOV 9	3.38	84	65	55	47	44	42	37	26	18	5	0	0
NOV 16	3.28	94	81	72	60	49	36	25	15	9	3	0	0
NOV 23	2.34	90	80	68	46	33	26	17	8	2	0	0	0
NOV 30	2.76	95	85	76	63	56	39	33	26	9	2	0	0
DEC 7	(3.53)	98	90	84	75	59	45	38	23	2	0	0	0
DEC 14	(2.46)	92	83	68	52	45	30	20	17	0	0	0	0
DEC 21	1.48	70	52	45	42	36	28	19	8	6	0	0	0
DEC 28	(3.25)	92	79	71	65	58	36	28	14	0	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.73)	73	46	35	25	19	16	13	12	6	0	0	0
JAN 6	2.19	77	70	54	42	35	28	23	20	16	0	0	0
JAN 13	(3.27)	87	58	56	52	50	44	38	32	21	10	0	0
JAN 20	4.27	97	94	87	84	78	68	58	39	20	5	0	0
JAN 27	4.27	95	78	73	69	60	51	50	41	36	16	0	0
FEB 3	3.08	76	66	53	46	42	35	28	21	13	9	0	0
FEB 10	3.69	93	83	64	53	43	37	30	22	10	7	0	0
FEB 17	3.19	92	80	65	56	48	42	34	26	16	6	0	0
FEB 24	4.20	95	87	71	63	55	43	38	29	21	14	1	0
MAR 2	2.87	93	79	53	40	30	21	12	5	0	0	0	0
MAR 9	3.72	91	81	68	60	53	45	35	28	11	4	1	0
MAR 16	(5.05)	97	92	88	84	70	58	50	35	26	13	6	0
MAR 23													
MAR 30													
APR 6													
APR 13	(5.93)	97	93	87	83	74	67	57	44	25	8	0	0
APR 20	5.59	97	93	88	83	73	65	54	39	18	0	0	0
APR 27	3.94	94	86	74	63	55	46	39	23	10	3	0	0
MAY 4	4.18	93	84	71	64	51	43	31	21	9	0	0	0
MAY 11	4.39	92	81	71	60	48	43	35	28	6	0	0	0
MAY 18	4.30	90	80	71	63	51	43	28	14	1	0	0	0
MAY 25	3.26	88	73	59	43	28	15	7	2	0	0	0	0
JUN 1	3.51	91	74	54	45	34	26	19	10	4	0	0	0
JUN 8	4.82	94	87	76	67	60	53	37	17	0	0	0	0
JUN 15	4.67	91	82	76	70	62	56	42	24	0	0	0	0
JUN 22	4.78	93	86	79	69	63	54	44	15	0	0	0	0
JUN 29	3.52	88	72	61	52	42	30	24	10	0	0	0	0
JUL 6	4.61	92	86	79	73	64	55	37	21	2	0	0	0
JUL 13	(4.59)	94	85	77	67	60	50	35	16	0	0	0	0
JUL 20													
JUL 27	(4.19)	92	85	78	70	64	54	44	33	8	0	0	0
AUG 3	5.37	96	92	89	83	73	61	51	38	10	0	0	0
AUG 10	4.79	93	82	74	66	64	57	45	35	12	0	0	0
AUG 17	4.28	83	77	70	66	57	51	45	33	26	4	0	0
AUG 24	4.17	94	85	72	61	53	42	32	25	19	6	0	0
AUG 31	4.98	91	85	80	74	64	58	47	34	23	1	0	0
SEP 7	2.94	86	65	58	53	44	39	30	17	10	0	0	0
SEP 14	4.17	90	85	74	70	60	49	44	34	23	9	0	0
SEP 21	(4.40)	97	93	84	71	63	44	18	5	0	0	0	0
SEP 28													
OCT 5													
OCT 12													
OCT 19													
OCT 26													
NOV 2													
NOV 9													
NOV 16													
NOV 23													
NOV 30													
DEC 7													
DEC 14													
DEC 21													
DEC 28													

SOLAR RADIATION DATA for: FORT BENTON, MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.95)	72	68	67	59	47	30	27	9	0	0	0	0
JAN 6	1.70	85	61	49	34	22	13	9	4	0	0	0	0
JAN 13	2.51	93	76	67	51	46	41	32	25	6	0	0	0
JAN 20	1.75	80	72	59	44	38	20	12	0	0	0	0	0
JAN 27	4.44	99	97	96	92	82	69	54	33	8	0	0	0
FEB 3	(1.91)	49	49	44	41	32	4	0	0	0	0	0	0
FEB 10	(1.79)	92	69	41	8	4	0	0	0	0	0	0	0
FEB 17	(2.97)	79	65	53	44	37	34	30	24	16	5	0	0
FEB 24	(3.86)	95	92	74	62	53	37	31	19	14	5	0	0
MAR 2	3.30	95	88	71	50	39	23	21	20	15	4	0	0
MAR 9	3.70	91	81	75	68	56	46	34	27	16	7	0	0
MAR 16	4.15	93	76	68	63	58	51	43	36	24	3	0	0
MAR 23	4.44	96	84	74	65	60	52	42	31	23	4	0	0
MAR 30	2.79	79	47	44	37	34	25	21	17	13	4	0	0
APR 6	4.72	95	87	81	72	67	59	47	35	24	7	0	0
APR 13	5.58	97	93	88	82	75	65	52	39	22	0	0	0
APR 20	5.31	95	84	82	72	67	58	49	36	14	0	0	0
APR 27	4.69	92	78	70	63	59	53	46	38	4	0	0	0
MAY 4	4.79	96	90	85	79	63	50	38	20	2	0	0	0
MAY 11	5.72	97	93	88	84	77	68	58	36	0	0	0	0
MAY 18	3.82	88	76	68	56	49	42	33	12	0	0	0	0
MAY 25	3.67	94	83	70	55	37	25	16	9	0	0	0	0
JUN 1	3.96	90	76	68	60	46	33	21	10	2	0	0	0
JUN 8	4.77	97	90	82	70	61	46	31	12	1	0	0	0
JUN 15	5.26	95	87	84	79	67	60	45	25	4	0	0	0
JUN 22	4.58	91	80	74	70	65	53	35	21	4	1	0	0
JUN 29	5.38	96	91	84	77	68	58	43	25	1	0	0	0
JUL 6	5.84	96	92	88	84	77	67	52	33	2	0	0	0
JUL 13	4.36	94	84	77	64	50	35	23	13	0	0	0	0
JUL 20	5.65	96	92	88	81	71	60	47	29	0	0	0	0
JUL 27	5.78	96	92	88	81	73	64	53	35	1	0	0	0
AUG 3	4.45	93	82	76	65	54	44	32	18	7	0	0	0
AUG 10	4.75	94	87	78	66	54	43	34	21	4	0	0	0
AUG 17	4.49	92	80	71	58	49	42	34	22	12	0	0	0
AUG 24	5.70	96	92	86	78	74	66	58	45	22	0	0	0
AUG 31	5.32	97	93	88	79	69	58	43	27	16	1	0	0
SEP 7	4.10	95	82	67	59	52	43	29	25	10	1	0	0
SEP 14	3.86	84	72	67	59	52	46	41	33	19	4	0	0
SEP 21	4.67	94	82	75	72	66	59	52	43	32	4	0	0
SEP 28	4.89	96	86	81	72	65	55	46	36	20	0	0	0
OCT 5	5.79	99	97	92	88	84	74	63	47	27	0	0	0
OCT 12	3.00	65	54	52	50	44	41	34	21	7	0	0	0
OCT 19	3.53	81	77	70	66	57	45	34	28	11	0	0	0
OCT 26	2.31	71	53	48	42	35	22	10	6	1	0	0	0
NOV 2	2.54	86	70	65	52	42	27	19	13	4	0	0	0
NOV 9	2.57	63	59	51	49	48	42	37	26	3	0	0	0
NOV 16	2.13	76	58	48	39	29	22	20	17	3	0	0	0
NOV 23	(4.13)	99	98	95	94	91	83	62	53	0	0	0	0
NOV 30	1.88	78	55	51	44	33	22	18	9	0	0	0	0
DEC 7	1.85	82	63	52	42	34	17	8	2	0	0	0	0
DEC 14	.82	55	33	16	7	0	0	0	0	0	0	0	0
DEC 21	.97	38	20	17	13	12	10	9	1	0	0	0	0
DEC 28	(1.57)	38	33	32	32	30	28	19	7	0	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.08)	58	33	32	31	23	17	12	3	0	0	0	0
JAN 6	2.43	90	66	56	52	40	32	29	12	2	0	0	0
JAN 13	(3.92)	97	92	88	85	73	64	47	26	14	0	0	0
JAN 20	2.42	92	69	55	43	35	22	15	12	5	0	0	0
JAN 27	4.57	95	84	81	77	71	65	57	43	20	0	0	0
FEB 3	3.74	94	75	70	63	55	43	35	22	9	0	0	0
FEB 10	4.70	98	92	89	80	74	63	51	40	23	0	0	0
FEB 17	3.23	93	68	50	43	38	34	30	25	17	0	0	0
FEB 24	4.58	97	87	80	73	63	56	49	36	24	4	2	0
MAR 2	5.28	98	95	91	85	78	69	61	41	19	5	0	0
MAR 9	3.39	95	84	71	50	47	36	20	11	0	0	0	0
MAR 16	5.06	97	93	87	81	66	50	38	29	20	3	0	0
MAR 23	4.37	93	77	68	60	55	43	31	25	18	2	0	0
MAR 30	3.64	92	81	59	44	32	27	21	16	11	0	0	0
APR 6	4.04	90	74	54	43	38	34	27	21	14	0	0	0
APR 13	6.17	97	94	90	84	77	69	57	43	25	0	0	0
APR 20	6.22	97	94	91	86	80	73	56	41	14	0	0	0
APR 27	6.13	97	93	90	86	79	70	59	45	19	0	0	0
MAY 4	5.70	88	82	77	73	67	60	51	36	12	0	0	0
MAY 11	5.46	96	89	79	72	64	57	43	27	7	0	0	0
MAY 18	(5.70)	96	92	83	73	67	56	45	26	0	0	0	0
MAY 25	5.04	96	91	83	71	61	50	35	20	2	0	0	0
JUN 1	4.71	89	78	72	63	52	40	26	14	1	0	0	0
JUN 8	5.85	96	92	89	84	76	70	53	31	3	0	0	0
JUN 15	5.59	96	92	86	76	66	57	46	25	0	0	0	0
JUN 22	4.81	94	86	74	66	56	44	32	12	0	0	0	0
JUN 29	5.23	94	88	83	75	66	55	44	23	0	0	0	0
JUL 6	5.41	95	91	85	78	70	62	46	24	0	0	0	0
JUL 13	5.02	95	88	82	73	62	48	33	22	6	0	0	0
JUL 20													
JUL 27	5.51	96	91	84	78	67	57	45	32	1	0	0	0
AUG 3	4.36	93	83	71	63	59	42	25	20	2	0	0	0
AUG 10	4.15	93	85	68	62	49	43	28	14	2	0	0	0
AUG 17	4.29	92	84	70	59	50	41	31	23	9	0	0	0
AUG 24	5.98	97	94	89	82	77	69	59	46	17	1	0	0
AUG 31	4.90	96	90	80	72	63	50	38	29	14	1	0	0
SEP 7	3.94	95	87	73	57	45	34	25	18	9	0	0	0
SEP 14	4.02	88	76	74	67	60	50	37	28	8	0	0	0
SEP 21	4.62	95	85	80	72	62	51	41	32	22	0	0	0
SEP 28	5.31	98	94	89	83	74	63	47	31	15	0	0	0
OCT 5	6.13	98	96	94	89	85	77	66	48	26	0	0	0
OCT 12	3.21	90	72	57	50	40	31	23	18	10	0	0	0
OCT 19	3.60	82	80	71	63	55	49	39	24	13	0	0	0
OCT 26	3.13	85	76	68	59	47	34	22	14	3	0	0	0
NOV 2	3.57	90	79	71	65	56	47	38	25	9	0	0	0
NOV 9	3.12	90	66	62	57	52	43	27	19	3	0	0	0
NOV 16	3.55	94	89	82	75	64	48	39	23	4	0	0	0
NOV 23	(2.54)	83	58	37	36	33	30	24	15	0	0	0	0
NOV 30	(1.52)	59	33	29	29	20	15	12	9	0	0	0	0
DEC 7	2.94	93	82	75	71	60	49	26	11	0	0	0	0
DEC 14	1.81	71	59	54	41	35	24	15	0	0	0	0	0
DEC 21	1.24	82	38	30	19	15	11	0	0	0	0	0	0
DEC 28	(3.76)	98	95	91	88	78	67	56	28	0	0	0	0

SOLAR RADIATION DATA for: GLENDIVE,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1													
JAN 6	(2.85)	88	76	75	64	46	30	21	11	0	0	0	0
JAN 13	(4.07)	99	94	84	72	66	59	48	38	7	0	0	0
JAN 20	(2.62)	90	73	64	53	37	22	15	12	6	0	0	0
JAN 27	3.79	84	80	78	71	63	53	42	30	15	0	0	0
FEB 3	2.77	81	69	64	52	44	38	25	20	11	0	0	0
FEB 10	(2.99)	69	58	53	48	41	37	37	33	29	7	0	0
FEB 17	(3.13)	93	55	47	43	43	32	29	21	5	0	0	0
FEB 24	(4.69)	92	82	71	62	53	51	46	36	30	7	0	0
MAR 2	5.11	94	81	79	74	68	59	51	43	32	7	0	0
MAR 9	3.91	93	85	74	67	58	43	26	19	8	0	0	0
MAR 16	(5.36)	98	94	83	75	63	53	47	37	25	2	0	0
MAR 23	4.51	94	84	76	66	58	49	37	29	22	0	0	0
MAR 30	3.80	93	79	59	42	32	28	26	21	14	1	0	0
APR 6	3.79	91	73	54	45	37	29	25	16	9	1	0	0
APR 13	5.52	96	90	87	75	67	58	49	37	19	0	0	0
APR 20	6.02	97	94	90	83	76	65	54	39	15	0	0	0
APR 27	5.97	96	92	88	84	75	67	55	40	17	0	0	0
MAY 4	5.72	96	91	87	79	69	59	47	29	8	0	0	0
MAY 11	5.25	92	80	75	70	64	56	47	32	5	0	0	0
MAY 18	5.61	95	90	84	77	66	53	39	25	0	0	0	0
MAY 25	4.89	94	86	79	68	58	48	37	27	1	0	0	0
JUN 1	4.50	87	76	71	66	58	47	35	24	5	0	0	0
JUN 8	5.34	95	90	87	80	72	63	51	31	0	0	0	0
JUN 15	(4.80)	93	80	66	63	57	51	39	23	0	0	0	0
JUN 22													
JUN 29	(5.20)	95	87	87	83	75	63	38	23	0	0	0	0
JUL 6	4.50	89	82	74	64	55	47	27	14	0	0	0	0
JUL 13	4.61	93	83	77	70	54	42	31	19	1	0	0	0
JUL 20	5.15	95	89	81	72	67	57	41	28	0	0	0	0
JUL 27	4.99	95	86	78	72	64	56	43	24	0	0	0	0
AUG 3	4.65	90	84	77	70	57	49	38	23	0	0	0	0
AUG 10	3.25	68	63	57	47	38	27	18	10	0	0	0	0
AUG 17	(5.41)	97	94	89	79	69	55	41	28	0	0	0	0
AUG 24													
AUG 31													
SEP 7													
SEP 14													
SEP 21													
SEP 28													
OCT 5													
OCT 12													
OCT 19	(3.63)	97	92	85	71	51	33	17	7	0	0	0	0
OCT 26	3.49	79	70	66	60	56	46	39	28	4	0	0	0
NOV 2	3.43	96	90	83	71	62	52	44	25	2	0	0	0
NOV 9	2.59	72	54	51	49	46	42	36	25	5	0	0	0
NOV 16	3.55	96	88	81	76	65	54	43	27	3	0	0	0
NOV 23	3.19	96	90	83	70	61	41	26	15	0	0	0	0
NOV 30	1.15	69	38	36	29	17	8	6	4	0	0	0	0
DEC 7	2.95	83	74	67	62	56	48	35	25	1	0	0	0
DEC 14	1.98	80	71	59	48	36	28	17	7	0	0	0	0
DEC 21	(.47)	27	0	0	0	0	0	0	0	0	0	0	0
DEC 28													

SOLAR RADIATION DATA for: GREAT FALLS,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM) >.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.89)	96	88	74	63	51	46	28	4	0	0	0	0
JAN 6	1.78	86	64	47	30	14	12	9	6	0	0	0	0
JAN 13	3.13	96	89	77	61	41	34	27	16	5	0	0	0
JAN 20	(2.13)	86	74	66	53	50	43	20	16	0	0	0	0
JAN 27	4.74	98	95	91	87	81	74	60	42	22	0	0	0
FEB 3	2.24	76	55	50	43	28	24	22	10	1	0	0	0
FEB 10	2.57	83	62	43	32	22	18	15	10	7	0	0	0
FEB 17	4.03	93	72	66	64	56	52	46	34	22	9	0	0
FEB 24	2.98	70	51	39	37	37	33	29	20	15	6	0	0
MAR 2	(3.81)	95	85	72	60	48	36	31	21	12	5	0	0
MAR 9	4.00	93	82	72	66	55	47	34	26	18	6	0	0
MAR 16	4.41	92	74	64	55	52	45	38	32	22	11	0	0
MAR 23	4.73	96	84	78	72	62	53	39	33	23	7	0	0
MAR 30	3.92	91	76	59	52	45	41	28	18	13	4	0	0
APR 6	4.19	95	83	61	54	47	40	32	26	14	2	0	0
APR 13	5.95	97	93	89	84	75	65	55	43	24	4	1	0
APR 20	5.63	96	88	81	78	71	63	53	43	16	0	0	0
APR 27	4.84	89	75	67	61	56	50	42	33	12	0	0	0
MAY 4	4.67	91	80	68	62	52	45	32	15	5	0	0	0
MAY 11	6.13	96	92	87	83	78	69	59	44	11	0	0	0
MAY 18	3.99	83	72	65	57	47	37	30	20	4	0	0	0
MAY 25	4.01	92	82	73	61	50	38	29	20	4	0	0	0
JUN 1	4.44	92	73	67	58	52	39	26	16	5	0	0	0
JUN 8	5.01	96	90	79	74	63	43	31	20	4	0	0	0
JUN 15	5.37	94	90	83	76	70	60	41	23	6	0	0	0
JUN 22	5.27	94	90	85	78	71	65	43	18	1	0	0	0
JUN 29	5.33	95	91	82	73	63	54	44	19	0	0	0	0
JUL 6	5.58	95	91	87	80	72	59	43	18	0	0	0	0
JUL 13	4.57	94	87	79	67	54	40	25	14	3	0	0	0
JUL 20	5.47	95	90	84	77	71	59	46	25	0	0	0	0
JUL 27	5.84	97	91	87	82	75	64	51	34	0	0	0	0
AUG 3	4.54	95	85	75	67	58	46	33	18	6	0	0	0
AUG 10	4.31	94	79	69	54	45	37	27	16	1	0	0	0
AUG 17	3.99	90	74	62	54	43	36	29	19	8	0	0	0
AUG 24	5.95	96	93	88	83	78	70	60	45	27	0	0	0
AUG 31	5.27	96	92	85	77	73	62	50	33	18	1	0	0
SEP 7	3.91	91	78	66	60	50	37	30	20	7	2	0	0
SEP 14	3.57	88	67	62	57	51	46	36	25	11	1	0	0
SEP 21	5.11	93	85	79	72	68	60	50	36	18	1	0	0
SEP 28	5.09	96	90	81	72	67	57	47	35	22	1	0	0
OCT 5	6.26	98	96	94	91	85	76	67	52	28	0	0	0
OCT 12	2.86	56	53	50	45	38	31	22	17	8	0	0	0
OCT 19	3.73	89	77	63	57	53	44	32	17	9	0	0	0
OCT 26	2.41	75	61	53	46	33	25	20	8	2	0	0	0
NOV 2	2.97	90	76	65	50	42	35	21	14	4	0	0	0
NOV 9	2.79	73	62	55	46	42	36	30	23	7	0	0	0
NOV 16	2.69	89	72	60	53	46	30	19	14	6	0	0	0
NOV 23	3.46	82	78	75	69	64	53	44	29	0	0	0	0
NOV 30	1.94	55	49	39	34	28	25	19	10	0	0	0	0
DEC 7	2.00	76	63	53	45	25	18	14	6	0	0	0	0
DEC 14	(.78)	51	24	10	5	0	0	0	0	0	0	0	0
DEC 21	1.10	43	25	19	14	12	8	4	0	0	0	0	0
DEC 28	(1.50)	46	32	31	28	24	17	14	7	0	0	0	0

SOLAR RADIATION DATA for: HAMILTON,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.32)	89	62	31	13	13	13	5	0	0	0	0	0
JAN 6	1.32	74	41	32	26	21	13	8	8	0	0	0	0
JAN 13	3.36	91	77	67	60	56	49	41	29	10	0	0	0
JAN 20	2.83	93	77	66	56	51	46	29	18	10	0	0	0
JAN 27	3.87	95	76	67	60	53	46	40	33	26	3	0	0
FEB 3	2.95	88	79	71	67	62	49	41	22	11	2	0	0
FEB 10	2.33	90	61	48	36	23	18	16	9	7	4	0	0
FEB 17	3.34	96	85	72	64	56	48	43	37	23	17	0	0
FEB 24	3.98	91	78	74	68	57	47	32	22	15	5	2	0
MAR 2	(2.26)	93	58	41	32	18	5	2	2	0	0	0	0
MAR 9	3.52	95	81	67	60	46	36	25	19	10	8	0	0
MAR 16	3.21	95	82	65	50	39	30	19	14	5	2	0	0
MAR 23	3.98	96	85	74	65	47	36	23	14	7	3	0	0
MAR 30	3.41	94	79	64	52	40	28	22	13	9	6	2	0
APR 6	4.14	94	84	74	64	52	44	33	29	16	4	0	0
APR 13	5.50	97	93	88	80	68	57	44	33	12	2	0	0
APR 20	4.45	88	78	73	68	59	50	42	33	7	0	0	0
APR 27	4.70	94	83	78	70	61	56	44	35	8	0	0	0
MAY 4	(3.48)	89	72	55	50	35	32	29	17	1	0	0	0
MAY 11	4.96	95	87	78	71	62	54	43	31	5	0	0	0
MAY 18	3.97	81	72	67	57	49	41	30	19	0	0	0	0
MAY 25	3.63	89	77	61	48	37	27	19	12	3	2	0	0
JUN 1	4.04	95	82	68	58	45	36	26	12	2	0	0	0
JUN 8	4.11	91	79	71	64	52	43	30	15	0	0	0	0
JUN 15	4.70	95	87	77	67	59	49	39	19	0	0	0	0
JUN 22	4.29	93	83	77	64	53	42	30	13	4	2	0	0
JUN 29	4.19	94	87	79	71	56	38	26	12	0	0	0	0
JUL 6	(5.88)	96	93	89	83	75	66	49	35	0	0	0	0
JUL 13													
JUL 20	(5.72)	97	93	89	83	75	64	50	25	0	0	0	0
JUL 27	5.50	97	93	89	83	76	66	55	37	1	0	0	0
AUG 3	5.25	96	89	83	74	67	57	48	34	5	0	0	0
AUG 10	4.96	97	92	87	82	66	51	40	30	2	0	0	0
AUG 17	4.56	96	89	79	71	62	48	40	20	8	1	0	0
AUG 24	(6.34)	98	96	92	89	85	77	67	55	21	0	0	0
AUG 31													
SEP 7	(4.14)	95	87	75	63	51	47	37	33	21	0	0	0
SEP 14	3.23	86	64	57	45	41	30	26	18	5	0	0	0
SEP 21	4.65	97	91	83	74	59	52	42	34	20	2	0	0
SEP 28	5.67	98	95	90	85	78	71	56	48	30	0	0	0
OCT 5	6.27	99	97	94	89	83	79	70	58	35	2	0	0
OCT 12	2.72	69	65	60	52	45	39	30	17	9	0	0	0
OCT 19	4.17	92	87	78	72	63	51	43	38	26	11	0	0
OCT 26	3.85	98	88	83	76	66	56	44	26	10	0	0	0
NOV 2	2.71	73	59	56	51	45	40	31	21	9	3	0	0
NOV 9	(4.18)	98	94	90	87	80	69	44	30	12	4	0	0
NOV 16	2.72	87	70	54	44	37	30	25	22	12	0	0	0
NOV 23	2.06	88	70	59	49	31	24	16	11	2	0	0	0
NOV 30	1.42	67	55	42	36	34	22	10	5	3	0	0	0
DEC 7	3.13	95	78	71	68	59	53	42	28	5	0	0	0
DEC 14	(3.49)	96	88	77	72	60	47	36	21	4	0	0	0
DEC 21	.59	37	18	5	3	3	0	0	0	0	0	0	0
DEC 28	(2.67)	91	70	55	54	45	27	18	16	0	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.84)	75	57	55	53	48	45	35	24	4	0	0	0
JAN 6	2.07	90	66	43	34	27	24	16	11	4	0	0	0
JAN 13	2.98	80	65	54	50	41	38	32	24	9	0	0	0
JAN 20	3.46	90	84	79	72	65	56	42	29	21	2	0	0
JAN 27	4.75	97	93	90	84	72	58	46	36	19	0	0	0
FEB 3	2.92	79	60	51	44	35	31	23	15	13	3	0	0
FEB 10	3.21	93	80	56	43	37	25	20	16	9	3	0	0
FEB 17	(3.79)	87	77	69	56	50	47	34	26	18	7	0	0
FEB 24													
MAR 2													
MAR 9													
MAR 16													
MAR 23													
MAR 30													
APR 6													
APR 13													
APR 20	(5.44)	95	91	85	82	67	60	52	39	19	0	0	0
APR 27	5.42	96	89	86	80	70	66	55	42	17	0	0	0
MAY 4	4.59	94	80	71	61	56	47	36	28	11	1	0	0
MAY 11	4.58	94	87	78	66	58	45	30	17	7	0	0	0
MAY 18	5.05	95	91	83	75	66	53	39	22	4	1	0	0
MAY 25	3.49	82	71	59	51	38	29	19	9	1	0	0	0
JUN 1	4.06	91	79	68	56	45	36	28	20	5	0	0	0
JUN 8	4.77	94	90	83	78	71	58	41	20	1	1	0	0
JUN 15	4.45	91	82	73	68	60	51	39	12	2	0	0	0
JUN 22	(5.00)	94	88	79	70	60	54	43	20	0	0	0	0
JUN 29	4.42	90	77	69	63	55	45	34	21	1	0	0	0
JUL 6	5.24	95	91	86	79	70	59	47	26	2	0	0	0
JUL 13	4.78	94	88	83	75	65	51	40	22	0	0	0	0
JUL 20	5.59	96	92	86	81	74	63	49	26	1	0	0	0
JUL 27	5.52	96	93	87	81	70	63	54	35	3	0	0	0
AUG 3	5.42	96	92	87	79	71	58	49	39	12	0	0	0
AUG 10	4.15	92	79	67	58	45	40	29	18	5	1	0	0
AUG 17	4.09	93	80	71	64	48	42	36	28	14	6	0	0
AUG 24	(5.88)	96	93	88	87	83	78	70	57	28	0	0	0
AUG 31													
SEP 7													
SEP 14													
SEP 21	(5.39)	96	93	87	83	77	67	59	42	28	0	0	0
SEP 28	5.52	97	93	88	82	73	60	53	38	24	2	0	0
OCT 5	6.25	98	96	92	86	81	73	61	53	32	0	0	0
OCT 12	3.22	84	63	49	45	37	30	24	20	12	0	0	0
OCT 19	3.83	80	75	69	64	51	46	38	30	18	0	0	0
OCT 26	3.01	85	66	58	51	45	35	21	16	6	0	0	0
NOV 2	3.93	92	78	65	59	56	49	42	28	11	0	0	0
NOV 9	3.62	90	71	63	59	54	46	36	29	15	0	0	0
NOV 16	3.33	91	78	68	56	46	38	29	21	10	0	0	0
NOV 23	3.51	85	76	72	67	57	50	38	22	6	0	0	0
NOV 30	2.29	77	60	47	40	36	31	24	16	3	0	0	0
DEC 7	2.68	88	77	67	62	41	30	18	13	0	0	0	0
DEC 14	(1.42)	95	45	24	0	0	0	0	0	0	0	0	0
DEC 21													
DEC 28													

SOLAR RADIATION DATA for: HAVRE,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.71)	64	47	43	42	30	27	25	7	0	0	0	0
JAN 6	2.06	92	70	58	43	26	21	13	6	0	0	0	0
JAN 13	3.46	79	74	72	63	57	47	42	31	13	0	0	0
JAN 20	1.91	77	61	50	39	31	22	15	7	4	0	0	0
JAN 27	4.50	96	88	83	76	69	57	41	34	13	0	0	0
FEB 3	3.06	73	62	58	52	47	40	32	21	13	0	0	0
FEB 10	3.85	97	89	77	68	60	50	36	30	10	0	0	0
FEB 17	(2.07)	62	46	43	36	29	19	5	0	0	0	0	0
FEB 24													
MAR 2	(5.80)	98	95	90	84	77	68	55	44	34	17	5	0
MAR 9	3.45	94	78	69	60	50	38	25	16	9	1	0	0
MAR 16	4.43	96	84	74	62	56	45	34	30	19	4	0	0
MAR 23	4.68	96	89	78	68	59	48	37	29	17	5	0	0
MAR 30	2.96	84	44	38	35	32	27	21	16	10	2	0	0
APR 6	4.79	88	79	74	70	65	58	50	37	23	7	0	0
APR 13	5.87	97	93	91	84	76	65	58	40	21	0	0	0
APR 20	5.82	97	91	88	81	74	68	56	41	20	0	0	0
APR 27	(6.19)	97	95	91	87	79	72	62	44	14	0	0	0
MAY 4	(4.84)	91	82	75	63	56	45	38	29	10	0	0	0
MAY 11	5.96	95	94	92	85	77	67	55	43	14	0	0	0
MAY 18	4.78	94	90	81	74	63	53	33	16	1	0	0	0
MAY 25	4.71	94	88	80	70	60	46	35	20	4	0	0	0
JUN 1	4.02	90	79	69	60	49	40	30	18	1	0	0	0
JUN 8	4.87	94	90	85	78	68	55	41	10	0	0	0	0
JUN 15	4.59	92	89	85	76	63	45	30	1	0	0	0	0
JUN 22	3.83	89	77	70	63	53	38	23	9	4	1	0	0
JUN 29	4.63	94	90	82	74	62	39	28	15	1	0	0	0
JUL 6	3.80	93	89	83	70	55	14	0	0	0	0	0	0
JUL 13	3.12	90	79	63	43	27	10	0	0	0	0	0	0
JUL 20	3.72	94	84	76	64	45	5	0	0	0	0	0	0
JUL 27	3.93	93	88	78	66	53	11	0	0	0	0	0	0
AUG 3	3.15	88	78	63	52	32	12	2	0	0	0	0	0
AUG 10	3.56	92	86	79	62	37	13	0	0	0	0	0	0
AUG 17	3.03	90	74	59	44	29	17	0	0	0	0	0	0
AUG 24	(5.05)	97	91	83	77	68	52	32	23	13	0	0	0
AUG 31	5.58	96	93	89	84	74	59	51	35	17	1	0	0
SEP 7	4.09	90	84	71	62	47	39	36	29	16	0	0	0
SEP 14	3.77	83	75	68	60	53	45	36	19	14	3	0	0
SEP 21	(3.45)	92	86	73	63	57	49	42	32	22	11	0	0
SEP 28													
OCT 5													
OCT 12	(1.80)	88	63	35	26	7	0	0	0	0	0	0	0
OCT 19	2.65	67	62	50	49	42	35	23	13	4	0	0	0
OCT 26	2.92	83	61	52	45	36	31	19	10	5	0	0	0
NOV 2	2.67	78	67	57	45	30	24	21	17	10	0	0	0
NOV 9	2.10	69	52	44	37	34	28	21	15	0	0	0	0
NOV 16	2.86	84	70	65	52	36	28	22	16	8	0	0	0
NOV 23	3.29	82	75	69	63	60	57	48	34	11	0	0	0
NOV 30	2.00	68	53	46	40	32	28	22	10	3	0	0	0
DEC 7	(.50)	22	0	0	0	0	0	0	0	0	0	0	0
DEC 14	(.98)	56	29	19	17	7	4	0	0	0	0	0	0
DEC 21	1.30	74	31	22	15	12	11	10	7	0	0	0	0
DEC 28	(2.78)	94	90	85	82	66	61	36	25	0	0	0	0

SOLAR RADIATION DATA for: HELENA,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM) >.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.70)	78	51	38	25	23	10	3	3	0	0	0	0
JAN 6	1.63	86	52	42	37	26	16	14	12	12	8	0	0
JAN 13	3.70	96	88	79	67	59	46	37	30	14	3	0	0
JAN 20	2.97	96	89	75	65	55	40	31	17	7	0	0	0
JAN 27	4.23	90	72	68	65	60	55	47	35	22	0	0	0
FEB 3	2.90	78	64	58	53	46	44	36	30	14	6	0	0
FEB 10	2.75	73	64	51	45	36	32	24	16	8	1	0	0
FEB 17	3.47	96	85	72	56	42	34	25	12	9	5	0	0
FEB 24	3.24	93	83	61	43	32	27	24	20	9	4	0	0
MAR 2	3.69	95	81	60	46	39	28	26	18	13	8	0	0
MAR 9	(3.93)	89	75	61	51	43	36	29	18	14	9	2	0
MAR 16	(4.01)	93	85	74	64	53	45	39	26	15	2	0	0
MAR 23	(3.66)	95	89	82	78	54	38	19	0	0	0	0	0
MAR 30													
APR 6	(4.57)	95	83	70	61	55	45	39	27	15	7	0	0
APR 13	5.69	97	92	84	80	73	65	53	39	20	0	0	0
APR 20	5.61	96	94	90	82	76	67	51	35	14	0	0	0
APR 27	4.21	79	75	69	61	50	44	33	23	3	0	0	0
MAY 4	3.65	90	76	61	49	43	32	23	19	7	0	0	0
MAY 11	4.89	96	91	83	77	70	57	42	12	4	0	0	0
MAY 18	4.01	88	77	69	62	52	42	28	10	0	0	0	0
MAY 25	3.29	79	70	61	48	35	21	14	4	1	1	0	0
JUN 1	2.91	84	64	51	37	29	21	15	6	0	0	0	0
JUN 8	4.00	92	85	79	71	51	41	20	7	0	0	0	0
JUN 15	3.98	93	87	79	65	55	36	20	1	0	0	0	0
JUN 22	(2.28)	82	62	46	19	9	4	2	0	0	0	0	0
JUN 29	(1.77)	83	65	48	27	0	0	0	0	0	0	0	0
JUL 6	(2.31)	86	71	49	31	19	10	5	0	0	0	0	0
JUL 13	(2.75)	90	82	59	39	23	23	0	0	0	0	0	0
JUL 20													
JUL 27	(4.41)	96	91	85	76	69	47	30	11	0	0	0	0
AUG 3													
AUG 10	(3.63)	91	83	67	59	47	33	25	14	0	0	0	0
AUG 17	(4.44)	95	89	70	58	46	36	33	21	7	0	0	0
AUG 24													
AUG 31													
SEP 7													
SEP 14													
SEP 21	(5.44)	98	95	85	78	74	65	55	36	21	0	0	0
SEP 28	5.68	99	95	91	85	76	67	56	39	22	0	0	0
OCT 5	6.43	99	96	93	90	85	76	68	54	31	0	0	0
OCT 12	(2.48)	65	46	35	30	29	25	18	15	2	0	0	0
OCT 19	4.28	97	85	79	72	62	50	41	31	15	0	0	0
OCT 26	2.85	81	72	61	57	50	44	35	20	10	0	0	0
NOV 2	3.10	84	68	59	51	49	41	35	25	17	1	0	0
NOV 9	(3.43)	78	72	71	64	51	46	38	27	16	7	0	0
NOV 16	(2.61)	87	72	61	57	54	45	43	34	21	4	0	0
NOV 23	2.97	87	79	70	64	59	50	40	26	3	0	0	0
NOV 30	2.45	89	73	55	48	47	44	36	18	6	0	0	0
DEC 7	2.62	82	72	60	54	45	35	18	8	2	0	0	0
DEC 14	1.22	55	40	29	23	21	14	12	0	0	0	0	0
DEC 21	.95	63	43	35	25	13	6	0	0	0	0	0	0
DEC 28	(2.80)	66	66	62	57	47	42	29	12	0	0	0	0

SOLAR RADIATION DATA for: JORDAN,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(.61)	28	0	0	0	0	0	0	0	0	0	0	0
JAN 6	2.97	92	77	68	61	54	35	23	17	13	4	0	0
JAN 13	3.85	94	85	75	73	66	57	47	29	16	0	0	0
JAN 20	2.53	80	66	48	42	40	34	29	20	10	0	0	0
JAN 27	4.85	94	88	81	78	73	68	58	41	24	0	0	0
FEB 3	3.86	90	84	77	66	53	49	43	36	22	0	0	0
FEB 10	3.75	94	72	61	53	47	42	39	31	23	8	0	0
FEB 17	2.76	71	54	45	40	33	22	19	17	13	5	0	0
FEB 24	4.83	90	82	79	74	66	60	55	38	28	12	0	0
MAR 2	4.92	96	92	84	77	66	50	43	33	23	13	0	0
MAR 9	3.49	93	85	71	59	49	37	26	11	5	0	0	0
MAR 16	5.49	97	91	88	78	68	62	54	41	26	3	0	0
MAR 23	4.96	96	89	77	71	64	57	47	35	21	4	0	0
MAR 30	3.48	81	62	49	43	40	33	31	20	13	5	0	0
APR 6	4.84	95	79	68	58	52	48	39	31	18	0	0	0
APR 13	6.22	97	94	90	86	79	72	59	47	27	0	0	0
APR 20	6.32	97	95	93	87	78	68	58	47	24	0	0	0
APR 27	5.87	96	94	90	85	79	70	60	44	16	0	0	0
MAY 4	(5.09)	94	86	83	73	68	57	49	33	5	0	0	0
MAY 11	5.37	93	87	81	76	71	59	49	35	3	0	0	0
MAY 18	5.28	94	89	85	81	74	60	47	28	0	0	0	0
MAY 25	4.33	91	73	66	60	50	44	30	20	2	0	0	0
JUN 1	4.19	91	81	74	68	55	39	26	12	1	0	0	0
JUN 8	5.14	94	88	86	81	78	69	53	23	1	0	0	0
JUN 15	4.50	93	81	73	69	63	54	40	15	0	0	0	0
JUN 22	4.45	90	81	77	71	68	54	39	13	0	0	0	0
JUN 29	4.35	93	81	77	71	63	57	37	14	0	0	0	0
JUL 6	4.85	93	87	83	80	72	64	46	11	0	0	0	0
JUL 13	4.60	94	86	85	78	71	57	41	18	0	0	0	0
JUL 20	(5.33)	94	92	89	85	79	66	55	26	1	0	0	0
JUL 27													
AUG 3													
AUG 10													
AUG 17	(4.02)	93	88	88	71	59	45	29	10	0	0	0	0
AUG 24	6.18	97	95	90	86	79	73	65	49	25	0	0	0
AUG 31	5.46	97	93	88	82	71	58	48	33	17	1	0	0
SEP 7	3.36	74	64	58	52	44	33	28	22	12	0	0	0
SEP 14	4.27	82	74	70	63	58	50	45	39	25	6	0	0
SEP 21	5.58	97	93	88	81	73	62	52	41	26	5	0	0
SEP 28	6.00	98	96	92	88	82	73	62	45	22	0	0	0
OCT 5	6.80	98	98	94	91	88	81	74	63	41	0	0	0
OCT 12	3.57	78	70	52	50	45	41	35	26	11	1	0	0
OCT 19	4.36	86	81	77	69	63	59	47	40	24	10	0	0
OCT 26	3.78	78	70	65	61	57	48	41	28	10	0	0	0
NOV 2	4.02	95	89	81	74	66	56	50	32	10	0	0	0
NOV 9	4.15	82	75	67	65	60	58	51	41	27	0	0	0
NOV 16	4.20	96	93	91	81	75	65	49	37	19	0	0	0
NOV 23	3.12	89	70	60	53	46	43	34	30	7	0	0	0
NOV 30	1.56	63	52	41	29	25	23	13	6	2	0	0	0
DEC 7	(2.73)	84	74	66	57	53	44	29	14	0	0	0	0
DEC 14	(2.28)	74	62	57	51	42	38	26	13	0	0	0	0
DEC 21	1.53	80	47	35	28	18	12	10	4	0	0	0	0
DEC 28	(3.71)	98	95	86	76	69	55	44	18	0	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.18)	51	37	33	22	17	12	10	7	4	0	0	0
JAN 6	1.81	85	55	43	32	23	16	10	6	4	0	0	0
JAN 13	3.20	76	64	59	51	47	39	34	22	13	3	0	0
JAN 20	(3.05)	78	66	54	51	38	31	20	15	9	0	0	0
JAN 27	4.11	79	69	68	64	62	56	48	37	21	6	0	0
FEB 3	(1.61)	91	66	41	17	17	0	0	0	0	0	0	0
FEB 10													
FEB 17	(3.32)	93	71	63	52	46	37	28	20	16	8	0	0
FEB 24	2.77	80	55	48	46	38	33	26	17	11	5	0	0
MAR 2	3.09	94	80	57	46	35	24	19	17	13	5	0	0
MAR 9	2.95	81	58	50	46	38	33	27	19	17	8	3	0
MAR 16	4.34	95	87	77	64	56	49	38	26	14	5	3	2
MAR 23	2.82	89	68	45	39	32	27	14	12	5	0	0	0
MAR 30	4.55	94	84	70	62	52	43	33	29	20	5	0	0
APR 6	(3.13)	68	54	52	47	39	36	26	15	5	0	0	0
APR 13	5.38	96	91	84	76	68	58	48	28	12	0	0	0
APR 20	5.11	84	81	77	72	65	58	45	30	9	0	0	0
APR 27	4.90	90	81	76	68	60	51	44	30	15	0	0	0
MAY 4	3.67	89	78	55	43	38	32	23	17	9	0	0	0
MAY 11	5.92	96	92	88	82	75	66	54	39	4	0	0	0
MAY 18	3.56	79	70	59	43	37	30	22	8	2	0	0	0
MAY 25	2.59	83	54	37	28	19	10	8	0	0	0	0	0
JUN 1	3.97	88	81	66	52	38	29	21	6	0	0	0	0
JUN 8	(3.95)	90	75	62	56	48	34	17	9	0	0	0	0
JUN 15	5.26	92	87	80	72	62	48	34	16	0	0	0	0
JUN 22	3.40	87	73	55	45	32	17	7	2	0	0	0	0
JUN 29	4.63	95	87	78	69	58	47	39	23	1	0	0	0
JUL 6	4.49	92	83	72	63	55	46	34	22	3	0	0	0
JUL 13	3.43	78	63	52	48	39	29	23	14	3	1	0	0
JUL 20	5.86	97	94	90	82	76	64	51	21	0	0	0	0
JUL 27	5.80	97	93	89	84	76	65	51	29	1	0	0	0
AUG 3	4.98	96	87	80	68	60	46	38	30	8	2	0	0
AUG 10	5.73	97	91	87	81	75	69	61	41	8	0	0	0
AUG 17	3.17	83	66	54	47	40	31	24	16	10	0	0	0
AUG 24	5.56	97	92	85	78	70	61	47	36	20	0	0	0
AUG 31	4.45	95	86	78	70	59	50	33	25	14	4	1	0
SEP 7	5.18	95	89	84	77	71	60	43	28	12	0	0	0
SEP 14	3.07	81	62	57	51	44	38	26	20	8	0	0	0
SEP 21	4.05	89	73	67	62	55	50	41	30	16	5	0	0
SEP 28	5.49	97	93	88	80	75	67	60	45	29	1	0	0
OCT 5	6.26	99	97	94	90	86	78	68	57	39	0	0	0
OCT 12	3.29	93	84	73	63	57	43	27	23	8	0	0	0
OCT 19	3.05	86	72	68	59	51	42	33	27	14	0	0	0
OCT 26	2.37	82	66	61	50	40	32	22	12	0	0	0	0
NOV 2	1.76	82	65	54	45	37	27	15	12	11	2	0	0
NOV 9	2.10	78	65	50	43	36	31	23	8	3	0	0	0
NOV 16	1.26	59	45	34	29	21	19	14	5	0	0	0	0
NOV 23	1.67	63	58	52	41	35	27	19	5	0	0	0	0
NOV 30	.80	55	35	20	11	6	4	4	0	0	0	0	0
DEC 7	1.47	60	43	35	34	29	22	14	9	0	0	0	0
DEC 14	1.42	47	42	35	29	19	16	11	3	0	0	0	0
DEC 21	.59	14	12	12	12	6	4	4	2	0	0	0	0
DEC 28	(1.47)	33	31	30	30	26	21	15	15	0	0	0	0

SOLAR RADIATION DATA for: LEWISTON,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.55)	78	69	60	56	49	36	24	11	5	0	0	0
JAN 6	2.35	94	72	56	38	23	21	13	8	6	0	0	0
JAN 13	2.81	90	63	54	49	41	36	26	21	9	0	0	0
JAN 20	2.50	86	62	57	48	40	36	27	20	8	3	0	0
JAN 27	5.39	99	97	93	89	84	76	66	49	31	6	0	0
FEB 3	3.10	75	57	50	44	37	32	29	21	11	3	0	0
FEB 10	3.70	94	78	61	50	46	36	32	24	15	4	0	0
FEB 17	4.39	91	78	75	72	64	56	50	39	31	17	2	0
FEB 24	4.80	89	82	79	75	70	63	54	40	24	4	0	0
MAR 2	3.71	96	89	68	53	47	33	24	18	12	6	0	0
MAR 9	2.80	92	64	43	36	31	24	18	11	7	4	0	0
MAR 16	4.79	94	85	76	69	66	49	37	27	22	11	1	0
MAR 23	4.66	96	85	73	64	57	51	43	35	19	8	0	0
MAR 30	4.47	95	88	74	61	48	39	31	25	14	6	1	1
APR 6	(4.57)	97	89	82	71	57	42	31	24	15	10	0	0
APR 13	6.25	98	94	91	84	76	70	63	54	33	5	1	0
APR 20	5.89	97	93	88	83	75	66	54	41	19	0	0	0
APR 27	5.11	95	91	85	73	58	51	39	27	11	0	0	0
MAY 4	5.12	96	91	84	77	64	51	39	24	5	0	0	0
MAY 11	4.87	94	88	79	73	62	51	40	25	2	0	0	0
MAY 18	4.89	95	88	80	67	56	43	36	22	4	0	0	0
MAY 25	4.17	93	83	74	63	55	39	28	16	4	0	0	0
JUN 1	3.97	89	72	61	56	45	33	24	16	3	0	0	0
JUN 8	5.18	95	91	88	81	73	62	50	23	0	0	0	0
JUN 15	4.54	93	80	71	67	61	50	34	21	1	0	0	0
JUN 22	5.08	94	86	80	73	67	59	48	31	2	0	0	0
JUN 29	4.50	92	82	73	61	51	44	32	18	1	0	0	0
JUL 6	5.38	96	91	86	80	75	63	48	29	0	0	0	0
JUL 13	4.35	93	86	73	65	47	32	22	14	1	0	0	0
JUL 20	5.72	96	93	88	81	73	63	52	33	1	0	0	0
JUL 27	5.75	96	92	86	81	77	67	52	34	0	0	0	0
AUG 3	5.06	96	89	82	77	71	61	48	32	9	0	0	0
AUG 10	4.69	96	91	80	71	62	50	35	25	5	0	0	0
AUG 17	4.43	91	79	65	55	50	44	35	25	14	6	0	0
AUG 24	5.34	96	92	86	80	69	59	46	33	18	0	0	0
AUG 31	5.01	95	84	78	68	59	51	39	30	19	2	0	0
SEP 7	3.46	89	67	57	50	44	32	22	18	8	0	0	0
SEP 14	3.48	80	73	62	51	40	35	27	24	16	7	2	0
SEP 21	5.03	94	86	78	66	62	58	50	39	24	4	0	0
SEP 28	5.61	97	92	87	78	69	63	53	40	32	8	2	0
OCT 5	6.41	99	97	91	88	83	77	70	60	41	8	0	0
OCT 12	3.31	77	56	51	47	45	41	31	27	18	0	0	0
OCT 19	3.98	84	73	62	56	52	47	38	32	19	5	0	0
OCT 26	2.85	75	60	54	44	41	31	26	17	7	0	0	0
NOV 2	3.24	84	76	68	55	50	39	32	28	11	0	0	0
NOV 9	4.04	77	69	67	63	60	56	49	41	23	0	0	0
NOV 16	2.85	82	66	60	52	43	38	31	21	13	0	0	0
NOV 23	3.48	88	70	65	61	60	50	43	30	13	0	0	0
NOV 30	(2.96)	87	83	79	78	63	57	49	35	6	0	0	0
DEC 7	2.83	82	73	69	58	49	36	26	13	4	0	0	0
DEC 14	1.49	77	50	34	26	14	13	5	2	0	0	0	0
DEC 21	.79	47	25	8	6	5	5	0	0	0	0	0	0
DEC 28	(3.33)	96	89	85	76	65	55	41	28	0	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SQ/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SQ) >.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.19)	54	45	34	20	16	16	8	6	0	0	0	0
JAN 6	(.72)	47	17	5	0	0	0	0	0	0	0	0	0
JAN 13	1.81	64	49	42	36	34	27	21	16	9	0	0	0
JAN 20	3.12	95	84	72	61	55	46	35	22	7	0	0	0
JAN 27	3.44	81	69	67	63	54	48	41	30	1	0	0	0
FEB 3	1.31	40	23	20	16	15	10	9	8	6	5	2	0
FEB 10	1.18	64	25	18	15	10	10	6	6	0	0	0	0
FEB 17	(2.33)	85	57	36	30	29	29	26	23	17	6	0	0
FEB 24	2.34	70	47	42	40	33	27	20	12	7	0	0	0
MAR 2	2.86	82	58	49	46	42	36	22	15	10	6	0	0
MAR 9	2.03	84	62	45	34	29	20	15	11	2	2	0	0
MAR 16	3.68	92	73	63	53	45	40	33	24	13	2	0	0
MAR 23	2.73	82	61	49	36	29	19	14	9	3	0	0	0
MAR 30	4.34	94	86	73	69	60	52	36	30	19	10	0	0
APR 6	3.50	87	68	53	47	38	35	27	22	17	4	0	0
APR 13	5.00	96	87	80	72	65	52	40	29	12	0	0	0
APR 20	(5.25)	97	93	87	80	69	58	46	25	6	0	0	0
APR 27	4.65	94	83	72	61	56	50	43	31	16	1	0	0
MAY 4	3.37	78	59	51	46	38	29	24	15	4	0	0	0
MAY 11	4.98	96	90	83	76	68	58	45	30	2	0	0	0
MAY 18	3.02	79	61	47	34	25	16	12	6	1	0	0	0
MAY 25	2.78	79	58	45	34	21	12	6	1	0	0	0	0
JUN 1	3.37	92	70	49	39	33	24	14	5	3	0	0	0
JUN 8	4.22	90	78	61	57	46	39	31	18	0	0	0	0
JUN 15	5.03	95	90	86	78	62	53	39	22	0	0	0	0
JUN 22	3.09	87	71	54	43	31	21	12	6	0	0	0	0
JUN 29	4.68	92	86	74	70	59	49	33	21	5	2	0	0
JUL 6	4.15	86	73	59	51	46	40	31	17	0	0	0	0
JUL 13	3.88	87	74	62	54	42	32	18	8	3	0	0	0
JUL 20	5.80	96	93	89	82	74	65	52	32	0	0	0	0
JUL 27	5.33	95	91	84	76	65	54	40	25	1	0	0	0
AUG 3	4.69	95	90	79	67	57	47	35	24	8	0	0	0
AUG 10	5.45	96	91	86	80	75	61	46	30	8	0	0	0
AUG 17	3.28	80	63	49	40	32	26	21	15	7	0	0	0
AUG 24	4.75	96	89	78	71	57	50	36	23	14	4	0	0
AUG 31	4.03	92	83	68	60	51	40	33	26	12	2	0	0
SEP 7	4.17	82	78	71	64	53	50	40	31	11	0	0	0
SEP 14	3.00	79	65	52	47	46	43	30	22	11	4	0	0
SEP 21	3.63	87	75	72	67	64	56	44	37	12	0	0	0
SEP 28	(5.22)	98	93	89	87	81	71	58	43	19	0	0	0
OCT 5	5.90	98	97	94	89	83	75	65	54	22	0	0	0
OCT 12	2.90	90	68	63	57	48	39	28	22	0	0	0	0
OCT 19	1.46	73	57	48	30	19	16	7	2	0	0	0	0
OCT 26	1.64	74	55	41	31	28	20	11	0	0	0	0	0
NOV 2	1.87	69	58	51	44	35	27	16	7	5	0	0	0
NOV 9	1.57	64	50	36	32	29	25	14	10	0	0	0	0
NOV 16	(1.59)	48	46	41	32	26	21	17	14	0	0	0	0
NOV 23													
NOV 30													
DEC 7	(1.67)	56	53	48	45	37	25	20	9	0	0	0	0
DEC 14	.67	26	18	17	17	10	5	3	0	0	0	0	0
DEC 21	.46	18	11	9	8	6	2	0	0	0	0	0	0
DEC 28	(1.72)	51	41	30	30	25	18	11	0	0	0	0	0

SOLAR RADIATION DATA for: LIVINGSTON,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.45)	71	43	24	24	24	14	12	9	7	0	0	0
JAN 6	1.57	65	39	27	25	21	21	15	10	3	0	0	0
JAN 13	(2.33)	82	47	34	31	31	27	26	16	9	0	0	0
JAN 20	3.71	96	93	84	76	71	58	48	39	25	1	0	0
JAN 27	4.28	97	77	73	65	63	54	48	42	27	8	0	0
FEB 3	(3.40)	86	67	62	58	53	39	37	25	18	3	0	0
FEB 10	2.70	92	69	42	29	26	22	19	16	13	6	0	0
FEB 17	(3.53)	90	73	62	55	49	40	29	23	15	6	0	0
FEB 24													
MAR 2	(3.11)	97	88	73	49	24	15	10	0	0	0	0	0
MAR 9	3.21	94	77	61	49	43	36	28	23	13	4	0	0
MAR 16	5.09	97	91	85	74	64	55	44	38	27	20	3	0
MAR 23													
MAR 30													
APR 6	(4.37)	96	83	69	61	56	46	40	31	23	12	0	0
APR 13	5.71	96	92	89	82	76	65	58	46	31	0	0	0
APR 20	5.12	97	91	86	76	64	50	38	28	15	0	0	0
APR 27	4.65	92	84	80	73	67	55	40	26	12	1	0	0
MAY 4	4.58	91	80	74	67	60	52	39	25	7	0	0	0
MAY 11	4.58	95	86	76	65	54	43	30	23	7	0	0	0
MAY 18	4.37	92	81	72	66	60	51	39	24	3	0	0	0
MAY 25	3.20	87	70	59	46	36	24	13	5	2	0	0	0
JUN 1	3.53	92	82	71	56	41	30	17	11	1	0	0	0
JUN 8	(5.85)	97	94	90	84	80	61	44	15	0	0	0	0
JUN 15													
JUN 22	(5.47)	96	92	86	78	69	61	43	23	0	0	0	0
JUN 29	3.57	84	73	59	52	42	32	22	13	0	0	0	0
JUL 6	4.81	94	87	83	77	70	60	39	17	0	0	0	0
JUL 13	4.80	94	89	81	74	66	55	39	22	4	0	0	0
JUL 20	5.53	96	92	86	84	77	69	59	37	0	0	0	0
JUL 27	5.47	96	92	89	84	78	70	57	42	5	0	0	0
AUG 3	(5.05)	97	91	85	81	71	62	52	34	12	4	0	0
AUG 10													
AUG 17													
AUG 24													
AUG 31													
SEP 7													
SEP 14													
SEP 21	(5.70)	98	94	89	86	77	69	63	51	37	11	2	0
SEP 28	(4.46)	96	90	83	77	59	47	39	31	12	3	0	0
OCT 5	(6.13)	99	96	94	88	82	77	68	54	34	0	0	0
OCT 12	2.70	72	45	40	37	37	35	32	25	18	1	0	0
OCT 19	4.02	89	73	69	66	55	45	37	33	18	4	0	0
OCT 26	(3.57)	90	82	76	65	53	47	41	24	12	0	0	0
NOV 2	2.69	87	79	66	58	52	40	29	19	11	3	0	0
NOV 9	3.17	81	51	44	42	40	38	33	27	19	7	0	0
NOV 16	3.13	93	80	72	61	51	41	32	19	9	4	0	0
NOV 23	2.77	82	67	57	55	41	35	21	12	3	0	0	0
NOV 30	1.94	80	55	45	37	31	17	15	11	3	0	0	0
DEC 7	2.65	89	70	63	54	45	34	22	14	0	0	0	0
DEC 14	1.55	70	49	41	27	14	11	7	3	0	0	0	0
DEC 21	(.89)	42	26	19	13	11	6	6	4	0	0	0	0
DEC 28													

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.51)	62	57	55	54	51	43	34	28	8	0	0	0
JAN 6	2.34	83	69	59	50	42	34	17	10	2	0	0	0
JAN 13	3.78	87	81	75	67	62	54	43	34	18	0	0	0
JAN 20	2.57	85	65	58	49	40	34	31	21	12	0	0	0
JAN 27	4.61	96	89	86	79	71	66	50	32	19	0	0	0
FEB 3	3.15	82	72	68	58	50	44	40	29	23	7	0	0
FEB 10	3.48	84	64	53	49	44	40	34	23	15	3	0	0
FEB 17	(2.70)	77	52	45	41	40	36	30	21	15	8	0	0
FEB 24	4.31	87	79	74	69	64	50	44	31	16	5	0	0
MAR 2	4.33	95	87	74	65	55	42	30	21	16	6	0	0
MAR 9	3.59	86	75	64	51	43	30	26	21	14	6	0	0
MAR 16	4.82	97	93	85	76	65	48	35	23	20	8	0	0
MAR 23	4.17	95	86	73	62	52	44	40	21	12	0	0	0
MAR 30	3.10	89	62	53	44	39	22	14	10	8	0	0	0
APR 6	4.21	94	80	66	52	41	39	34	22	14	7	0	0
APR 13	5.92	97	94	91	85	77	70	60	44	23	0	0	0
APR 20	5.96	97	95	90	85	79	68	58	39	12	0	0	0
APR 27	5.55	97	93	88	84	76	63	53	38	6	0	0	0
MAY 4	5.10	97	91	85	75	67	55	41	24	0	0	0	0
MAY 11	4.99	96	89	85	75	66	48	30	14	0	0	0	0
MAY 18	5.01	96	91	85	76	62	45	35	11	0	0	0	0
MAY 25	4.10	88	71	67	59	50	38	27	15	2	0	0	0
JUN 1	4.68	92	83	71	63	56	44	33	17	2	0	0	0
JUN 8	5.18	96	92	88	81	70	60	41	20	0	0	0	0
JUN 15	4.25	93	76	66	58	52	46	33	11	0	0	0	0
JUN 22	5.03	95	90	84	78	63	50	32	8	0	0	0	0
JUN 29	5.07	95	90	86	80	69	58	39	14	0	0	0	0
JUL 6	4.81	95	88	77	71	63	52	38	14	0	0	0	0
JUL 13	4.85	95	89	83	73	63	54	38	22	2	0	0	0
JUL 20	5.36	97	93	88	82	72	62	47	20	2	0	0	0
JUL 27	5.31	96	91	86	76	70	56	46	28	0	0	0	0
AUG 3	4.62	92	81	73	59	52	43	38	21	3	0	0	0
AUG 10	3.61	82	75	64	52	36	27	18	13	7	0	0	0
AUG 17	5.03	95	91	84	75	67	56	48	36	12	0	0	0
AUG 24	4.94	94	88	81	72	65	59	51	40	21	0	0	0
AUG 31	5.35	95	90	83	77	71	61	50	41	30	7	0	0
SEP 7	3.55	83	74	62	56	43	33	24	17	12	2	0	0
SEP 14	4.46	87	78	66	62	57	49	41	32	24	7	0	0
SEP 21	5.31	96	93	86	76	66	61	48	34	21	7	0	0
SEP 28	5.78	98	95	88	83	78	73	59	44	27	7	0	0
OCT 5	6.55	98	96	94	90	85	79	71	58	42	6	0	0
OCT 12	2.77	74	57	49	38	30	24	18	17	14	2	0	0
OCT 19	3.61	84	75	60	53	47	44	30	21	15	1	0	0
OCT 26	(3.34)	75	58	55	53	47	38	33	23	8	0	0	0
NOV 2													
NOV 9													
NOV 16													
NOV 23													
NOV 30													
DEC 7	(2.36)	71	66	60	55	37	31	15	2	0	0	0	0
DEC 14	1.89	76	67	55	41	38	29	19	12	0	0	0	0
DEC 21	1.36	72	50	35	24	11	7	6	2	0	0	0	0
DEC 28	(4.23)	99	95	91	84	79	71	52	34	0	0	0	0

SOLAR RADIATION DATA for: MISSOULA, MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(.90)	37	23	13	10	7	0	0	0	0	0	0	0
JAN 6	1.22	76	35	23	14	14	10	7	5	3	0	0	0
JAN 13	3.77	95	89	83	78	72	60	51	36	12	2	0	0
JAN 20	3.52	90	82	77	74	62	54	38	24	6	0	0	0
JAN 27	3.33	80	68	65	62	54	46	34	21	6	0	0	0
FEB 3	1.99	71	56	51	43	30	24	10	6	2	0	0	0
FEB 10	2.11	83	55	34	29	23	17	13	8	3	0	0	0
FEB 17	2.63	90	76	63	57	47	39	24	18	5	3	0	0
FEB 24	2.66	86	63	50	42	32	26	16	6	3	0	0	0
MAR 2	1.80	89	56	28	14	8	4	0	0	0	0	0	0
MAR 9	2.73	89	71	65	56	47	30	18	14	7	2	0	0
MAR 16	3.32	94	76	64	52	41	38	29	13	6	4	0	0
MAR 23	3.51	95	79	66	49	42	27	18	13	7	3	0	0
MAR 30	3.20	94	82	63	40	33	21	10	4	0	0	0	0
APR 6	2.78	87	63	55	47	38	26	19	5	1	0	0	0
APR 13	4.91	95	83	76	72	62	55	41	16	5	0	0	0
APR 20	4.39	93	81	74	65	55	47	30	22	3	0	0	0
APR 27	4.62	92	77	67	63	57	52	43	36	14	0	0	0
MAY 4	3.51	83	61	53	47	43	37	30	20	5	0	0	0
MAY 11	(4.83)	95	91	84	77	66	57	45	34	12	0	0	0
MAY 18	3.43	83	69	58	51	41	33	24	9	0	0	0	0
MAY 25	2.70	78	63	54	40	24	12	4	0	0	0	0	0
JUN 1	2.56	90	75	53	37	17	5	3	3	1	0	0	0
JUN 8	3.69	90	81	70	60	52	42	27	17	0	0	0	0
JUN 15	4.75	94	89	82	73	59	49	38	20	0	0	0	0
JUN 22	3.85	92	78	66	55	46	34	26	14	0	0	0	0
JUN 29	4.28	94	87	75	70	60	49	37	13	3	0	0	0
JUL 6	4.66	96	90	84	76	67	55	40	18	0	0	0	0
JUL 13	3.73	90	75	63	50	34	27	20	13	2	0	0	0
JUL 20	5.83	96	93	89	84	76	67	51	35	2	0	0	0
JUL 27	5.71	97	95	90	85	76	67	53	35	1	0	0	0
AUG 3	5.18	97	89	82	76	66	60	43	32	7	0	0	0
AUG 10	5.71	97	93	89	84	74	60	48	35	10	0	0	0
AUG 17	4.15	95	77	70	67	58	54	38	23	12	1	0	0
AUG 24	(5.12)	97	91	78	72	65	57	41	35	19	2	0	0
AUG 31	4.44	90	82	77	72	66	60	43	30	15	2	0	0
SEP 7	(4.35)	97	89	78	71	63	54	39	27	12	2	0	0
SEP 14	2.34	52	38	28	26	24	22	18	15	5	0	0	0
SEP 21	4.51	96	88	75	63	58	50	40	33	12	0	0	0
SEP 28	5.42	96	90	82	78	70	59	52	41	25	6	0	0
OCT 5	6.44	99	97	95	90	84	77	70	55	34	6	0	0
OCT 12	3.08	81	68	59	53	45	38	27	24	12	5	0	0
OCT 19	3.84	92	81	70	66	57	52	43	35	20	0	0	0
OCT 26	2.78	90	75	64	57	46	31	14	9	0	0	0	0
NOV 2	1.45	48	43	35	27	23	13	8	0	0	0	0	0
NOV 9	2.23	81	71	65	56	39	18	3	0	0	0	0	0
NOV 16	1.67	67	41	31	30	23	19	10	8	0	0	0	0
NOV 23	1.48	70	59	48	37	28	18	6	0	0	0	0	0
NOV 30	1.25	71	46	31	24	24	18	13	13	7	0	0	0
DEC 7	2.57	76	71	63	50	44	35	22	13	5	0	0	0
DEC 14	1.38	70	56	42	30	17	11	5	0	0	0	0	0
DEC 21	.25	9	0	0	0	0	0	0	0	0	0	0	0
DEC 28	(2.08)	62	50	47	41	29	25	20	15	0	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.27)	60	55	54	50	46	42	34	27	0	0	0	0
JAN 6	2.71	93	68	62	53	38	32	25	16	6	0	0	0
JAN 13	3.94	97	93	89	84	77	67	50	37	5	0	0	0
JAN 20	2.83	91	71	62	56	39	32	23	14	5	0	0	0
JAN 27	4.08	92	80	77	72	66	56	48	36	15	0	0	0
FEB 3	3.47	94	85	75	64	54	46	36	25	15	0	0	0
FEB 10	4.68	97	92	84	75	66	61	52	43	30	10	0	0
FEB 17	(3.96)	92	71	55	53	48	43	38	32	25	14	0	0
FEB 24	5.15	97	95	91	87	80	65	58	41	29	15	2	0
MAR 2	5.44	97	94	89	81	73	61	55	41	24	9	0	0
MAR 9	2.88	92	74	51	37	25	20	14	6	6	1	0	0
MAR 16	4.53	92	81	75	72	63	51	43	31	15	7	3	0
MAR 23	4.18	93	75	65	55	46	38	33	26	17	2	0	0
MAR 30	(4.43)	95	86	71	54	47	40	36	30	23	5	0	0
APR 6	4.21	92	74	66	56	49	38	28	21	13	6	0	0
APR 13	(5.51)	97	92	83	78	69	57	46	32	13	0	0	0
APR 20	(6.41)	97	94	90	87	80	71	61	47	22	0	0	0
APR 27	6.15	97	95	90	84	78	68	54	40	9	0	0	0
MAY 4	5.94	96	92	88	81	74	66	52	32	9	0	0	0
MAY 11	5.01	90	80	75	68	59	49	39	22	1	0	0	0
MAY 18	5.46	96	92	86	80	69	57	37	9	0	0	0	0
MAY 25	5.44	95	91	85	79	71	57	39	18	0	0	0	0
JUN 1	4.48	92	83	68	61	53	41	31	20	1	0	0	0
JUN 8	5.48	95	90	85	79	70	62	45	22	2	0	0	0
JUN 15	5.53	95	91	85	81	71	60	42	24	3	0	0	0
JUN 22	3.42	90	79	69	43	30	22	12	8	0	0	0	0
JUN 29	4.81	93	85	75	64	51	46	33	19	1	0	0	0
JUL 6	5.15	92	86	80	75	68	59	45	25	0	0	0	0
JUL 13	5.11	95	90	82	75	64	55	47	22	5	0	0	0
JUL 20	5.25	95	91	83	69	57	46	32	20	0	0	0	0
JUL 27	5.32	95	91	84	78	69	55	45	23	0	0	0	0
AUG 3	3.97	82	64	59	53	42	36	29	14	2	0	0	0
AUG 10	(4.79)	93	86	73	63	54	45	33	24	13	0	0	0
AUG 17	4.97	96	89	82	76	64	53	46	32	16	0	0	0
AUG 24	5.93	96	93	90	84	77	71	61	48	27	0	0	0
AUG 31	4.53	95	90	80	71	59	53	41	31	17	8	0	0
SEP 7	5.30	97	93	88	84	76	64	50	39	19	1	0	0
SEP 14	2.64	81	57	46	34	25	23	19	12	4	2	0	0
SEP 21	4.50	91	75	68	64	57	49	40	31	20	2	0	0
SEP 28	5.72	98	95	90	85	77	69	61	45	23	0	0	0
OCT 5	6.02	98	95	93	89	82	76	65	49	24	0	0	0
OCT 12	3.11	81	72	61	55	50	43	32	23	10	0	0	0
OCT 19	3.47	77	70	57	54	47	39	32	21	9	1	0	0
OCT 26	3.19	90	76	69	60	51	44	30	22	6	0	0	0
NOV 2	3.47	85	77	69	59	49	40	30	23	8	0	0	0
NOV 9	2.96	65	55	52	48	45	38	31	23	9	0	0	0
NOV 16	4.19	95	90	86	79	71	63	55	37	9	0	0	0
NOV 23	2.90	87	79	70	61	48	39	19	1	0	0	0	0
NOV 30	2.03	92	76	58	47	34	19	10	2	0	0	0	0
DEC 7	2.60	83	74	69	61	46	27	21	3	0	0	0	0
DEC 14	1.95	78	68	61	51	28	19	9	0	0	0	0	0
DEC 21	(.80)	52	19	5	0	0	0	0	0	0	0	0	0
DEC 28	(3.01)	94	88	84	69	65	40	22	6	0	0	0	0

SOLAR RADIATION DATA for: POLSON,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.53)	48	44	32	30	27	17	13	11	9	0	0	0
JAN 6	1.50	73	37	25	22	20	15	10	8	5	2	0	0
JAN 13	2.98	91	72	62	58	54	45	38	29	10	0	0	0
JAN 20	2.08	59	41	40	37	33	23	16	12	3	0	0	0
JAN 27	2.92	76	65	60	55	52	40	34	23	9	0	0	0
FEB 3	1.71	81	40	29	19	18	13	12	9	7	5	0	0
FEB 10	2.41	88	62	50	33	25	23	18	12	7	4	0	0
FEB 17	3.19	93	81	65	51	40	26	22	17	6	5	0	0
FEB 24	2.76	78	60	51	48	42	35	26	17	11	4	0	0
MAR 2	3.13	91	78	63	48	38	32	18	10	4	4	0	0
MAR 9	2.33	82	62	54	33	24	16	13	6	6	4	0	0
MAR 16	4.44	96	82	72	63	55	49	39	34	19	8	3	0
MAR 23	3.04	91	72	54	43	37	34	28	21	14	4	0	0
MAR 30	4.21	92	79	63	51	43	40	35	25	17	3	0	0
APR 6	3.26	84	64	51	43	37	31	24	15	9	2	0	0
APR 13	5.46	95	87	82	76	70	60	51	41	19	0	0	0
APR 20	5.24	91	86	77	73	65	54	43	32	14	1	0	0
APR 27	4.72	91	79	74	68	62	54	46	32	15	0	0	0
MAY 4	3.47	89	76	51	43	33	24	20	15	5	0	0	0
MAY 11	5.46	96	91	84	77	68	60	49	37	7	0	0	0
MAY 18	3.71	80	66	57	53	47	40	31	20	1	0	0	0
MAY 25	3.10	79	69	55	43	37	29	17	13	1	0	0	0
JUN 1	3.85	91	79	65	51	39	29	23	11	0	0	0	0
JUN 8	4.46	94	81	69	62	56	43	30	18	0	0	0	0
JUN 15	5.12	94	89	79	71	66	54	43	21	0	0	0	0
JUN 22	3.74	83	68	59	49	44	35	20	12	0	0	0	0
JUN 29	5.15	94	89	85	74	70	57	43	29	0	0	0	0
JUL 6	4.54	92	82	72	63	54	45	33	21	1	0	0	0
JUL 13	3.84	90	78	64	52	44	31	21	12	5	0	0	0
JUL 20	5.97	96	93	89	84	78	68	56	35	0	0	0	0
JUL 27	5.84	96	93	90	84	77	65	51	35	2	0	0	0
AUG 3	5.20	95	90	80	74	67	56	44	33	12	0	0	0
AUG 10	5.62	95	92	88	83	75	68	57	44	13	0	0	0
AUG 17	(3.34)	87	67	56	50	43	38	28	17	7	2	0	0
AUG 24	5.08	96	86	82	77	68	58	45	34	15	0	0	0
AUG 31	4.51	94	88	82	74	64	46	37	22	12	0	0	0
SEP 7	4.96	96	92	85	77	73	60	46	39	19	0	0	0
SEP 14	2.91	75	48	42	37	33	27	21	13	6	0	0	0
SEP 21	4.22	90	80	70	63	54	45	38	30	22	2	0	0
SEP 28	(5.57)	97	92	87	84	78	68	60	50	33	4	0	0
OCT 5	6.21	98	96	94	91	85	77	67	57	31	0	0	0
OCT 12	2.72	81	58	48	42	35	31	29	24	14	1	0	0
OCT 19	3.33	90	81	72	60	53	42	29	22	15	0	0	0
OCT 26	2.50	83	62	53	43	37	25	18	11	1	0	0	0
NOV 2	1.18	59	39	34	30	25	17	4	0	0	0	0	0
NOV 9	1.72	55	43	38	34	26	19	10	8	3	0	0	0
NOV 16	1.52	65	56	40	35	31	18	16	7	0	0	0	0
NOV 23	(1.75)	67	50	42	36	30	23	19	10	0	0	0	0
NOV 30	1.00	63	43	32	21	10	9	6	6	0	0	0	0
DEC 7	1.61	53	50	42	37	30	28	22	11	7	0	0	0
DEC 14	(2.29)	63	61	59	57	47	45	34	14	5	0	0	0
DEC 21	.29	17	10	8	3	0	0	0	0	0	0	0	0
DEC 28	(1.90)	59	56	41	32	29	27	23	20	6	0	0	0

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(2.30)	90	63	57	49	36	29	20	13	12	0	0	0
JAN 6	2.55	88	69	51	50	40	31	22	15	11	0	0	0
JAN 13	2.81	85	61	49	46	42	35	24	17	12	4	0	0
JAN 20	4.00	95	89	73	71	64	55	48	38	25	8	0	0
JAN 27	4.51	98	90	84	80	74	60	50	33	17	8	0	0
FEB 3	3.46	93	78	64	52	46	38	34	21	14	5	0	0
FEB 10	3.34	94	80	61	44	37	27	22	20	17	9	2	0
FEB 17	4.41	97	92	82	76	67	51	44	35	26	15	1	0
FEB 24	4.31	94	87	81	75	67	55	45	41	25	9	0	0
MAR 2	3.00	90	73	58	42	32	21	13	9	4	3	0	0
MAR 9	3.10	91	61	41	36	33	27	22	19	13	7	1	0
MAR 16	5.44	97	92	85	77	68	64	51	43	29	19	2	0
MAR 23	5.25	97	92	87	78	67	57	44	35	28	5	0	0
MAR 30	4.40	96	83	68	57	48	38	31	26	19	7	1	0
APR 6	5.37	97	90	80	71	67	57	48	38	24	5	2	0
APR 13	5.54	97	89	81	78	71	55	47	40	23	0	0	0
APR 20	(5.69)	97	93	89	84	77	68	59	38	11	0	0	0
APR 27	4.29	95	87	79	70	56	44	29	16	7	0	0	0
MAY 4	4.09	89	76	68	59	52	45	31	18	0	0	0	0
MAY 11	4.13	90	79	70	58	46	33	19	14	6	0	0	0
MAY 18	4.91	95	90	84	75	65	54	41	22	2	0	0	0
MAY 25	2.96	90	69	49	27	11	7	5	3	0	0	0	0
JUN 1	3.70	91	70	59	47	38	33	20	7	0	0	0	0
JUN 8	4.72	93	87	82	77	68	54	39	23	0	0	0	0
JUN 15	4.80	95	86	79	67	59	51	38	22	1	0	0	0
JUN 22	5.40	95	92	86	80	71	62	43	17	0	0	0	0
JUN 29	3.81	93	81	70	60	54	37	22	18	3	0	0	0
JUL 6	4.49	94	89	82	71	58	40	23	13	0	0	0	0
JUL 13	4.44	92	87	82	76	63	53	35	18	1	0	0	0
JUL 20	4.67	94	88	81	73	65	55	43	23	2	0	0	0
JUL 27	4.32	94	84	73	63	57	45	36	20	1	0	0	0
AUG 3	4.74	94	86	73	66	56	50	37	28	8	0	0	0
AUG 10	3.80	81	69	59	51	43	37	33	22	4	0	0	0
AUG 17	3.96	92	76	63	54	45	36	29	21	13	0	0	0
AUG 24	4.62	96	88	79	73	68	56	47	30	11	0	0	0
AUG 31	5.18	97	92	84	79	70	56	47	36	24	4	0	0
SEP 7	2.43	83	49	36	29	25	19	17	10	4	0	0	0
SEP 14	4.21	93	78	67	56	50	46	35	26	15	1	0	0
SEP 21	5.80	97	94	90	82	79	77	70	58	45	15	4	0
SEP 28	5.72	98	94	88	84	77	68	55	46	30	9	0	0
OCT 5	6.59	99	97	96	89	86	79	71	56	42	14	0	0
OCT 12	3.00	92	66	46	37	29	23	17	12	12	6	0	0
OCT 19	4.75	96	87	75	67	57	52	49	42	32	15	0	0
OCT 26	3.88	83	72	67	61	57	51	42	35	19	4	0	0
NOV 2	3.53	90	71	62	56	46	40	33	26	21	6	0	0
NOV 9	3.30	86	71	57	49	45	39	31	26	24	16	2	0
NOV 16	3.62	93	73	69	59	49	44	37	31	25	13	3	0
NOV 23	3.26	83	70	61	58	53	42	38	27	12	4	0	0
NOV 30	3.15	82	75	69	64	58	54	45	35	14	0	0	0
DEC 7	2.97	79	64	62	58	53	44	33	28	14	0	0	0
DEC 14	2.06	77	59	50	40	32	18	7	4	3	0	0	0
DEC 21	1.82	87	64	53	43	33	20	10	6	4	2	0	0
DEC 28	(2.72)	64	62	52	50	49	43	34	20	9	0	0	0

SOLAR RADIATION DATA for: SIDNEY,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Fowlkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(1.81)	73	67	57	42	34	27	17	3	0	0	0	0
JAN 6	2.52	83	68	59	47	39	27	19	5	2	0	0	0
JAN 13	3.62	94	86	79	73	63	54	42	34	9	0	0	0
JAN 20	3.06	84	67	61	52	46	35	24	16	6	0	0	0
JAN 27	4.57	85	83	80	75	68	60	53	41	25	0	0	0
FEB 3	3.07	84	70	61	54	44	36	28	25	18	0	0	0
FEB 10	3.67	83	77	65	53	48	42	30	23	14	0	0	0
FEB 17	2.95	78	56	42	37	34	29	25	21	16	6	0	0
FEB 24	4.87	97	93	86	80	72	64	48	41	30	6	2	0
MAR 2	4.88	95	88	73	68	59	54	47	38	26	11	2	0
MAR 9	3.95	96	84	74	64	58	48	32	20	11	5	0	0
MAR 16	(4.93)	98	93	84	75	66	62	48	37	22	8	0	0
MAR 23													
MAR 30													
APR 6													
APR 13													
APR 20													
APR 27													
MAY 4													
MAY 11													
MAY 18													
MAY 25													
JUN 1													
JUN 8	(5.11)	94	87	80	75	65	56	40	23	0	0	0	0
JUN 15	4.89	94	88	83	74	63	54	35	17	0	0	0	0
JUN 22	3.94	92	80	71	59	40	26	16	5	0	0	0	0
JUN 29	4.31	91	83	71	62	47	38	22	12	2	0	0	0
JUL 6	4.31	89	78	68	61	50	41	28	11	0	0	0	0
JUL 13	3.96	92	81	72	64	53	38	25	7	0	0	0	0
JUL 20	4.88	95	88	77	71	60	50	37	10	0	0	0	0
JUL 27	4.53	90	81	76	66	58	49	39	12	0	0	0	0
AUG 3	(3.79)	86	73	63	57	42	34	29	16	0	0	0	0
AUG 10	(.62)	16	0	0	0	0	0	0	0	0	0	0	0
AUG 17	4.43	95	87	74	65	53	40	32	20	4	0	0	0
AUG 24	5.30	97	88	84	77	70	58	47	39	16	0	0	0
AUG 31	4.44	91	78	72	64	56	47	39	32	18	0	0	0
SEP 7	4.18	94	84	73	61	56	52	38	28	11	0	0	0
SEP 14	2.96	82	66	48	43	39	31	23	12	5	0	0	0
SEP 21	4.72	84	77	71	65	60	52	42	30	20	2	0	0
SEP 28	5.53	98	93	89	86	78	63	53	41	21	0	0	0
OCT 5	6.14	98	96	93	89	83	76	68	56	33	0	0	0
OCT 12	(3.38)	68	58	56	49	44	41	30	17	8	0	0	0
OCT 19	(3.24)	81	68	65	60	52	43	35	23	16	0	0	0
OCT 26	3.80	94	85	73	65	52	42	37	26	18	0	0	0
NOV 2	3.96	97	91	85	74	63	49	43	31	12	0	0	0
NOV 9	2.32	76	49	42	39	32	27	24	19	11	4	0	0
NOV 16	3.93	96	88	80	75	68	64	52	30	11	0	0	0
NOV 23	3.02	93	85	77	65	55	41	27	14	0	0	0	0
NOV 30	1.72	81	62	51	39	20	17	15	9	0	0	0	0
DEC 7	2.93	90	76	72	67	55	44	28	21	6	0	0	0
DEC 14	(1.48)	81	54	50	46	35	30	19	0	0	0	0	0
DEC 21													
DEC 28													

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM) >.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1													
JAN 6													
JAN 13													
JAN 20	(3.93)	97	92	87	76	66	45	35	24	9	0	0	0
JAN 27	3.27	87	65	59	52	48	44	36	26	15	0	0	0
FEB 3	1.42	72	38	22	19	13	8	5	5	3	3	0	0
FEB 10	1.71	72	37	31	23	19	13	10	10	7	0	0	0
FEB 17	3.11	92	79	60	48	37	24	18	10	5	2	0	0
FEB 24	2.63	75	48	44	41	36	32	25	16	9	3	2	0
MAR 2	(2.18)	82	54	33	31	26	8	3	0	0	0	0	0
MAR 9	1.78	78	49	32	20	14	10	4	0	0	0	0	0
MAR 16	3.34	91	70	57	46	39	33	28	22	11	5	0	0
MAR 23	2.82	89	63	49	43	35	28	19	6	3	1	0	0
MAR 30	3.96	94	83	64	50	39	32	27	23	15	3	0	0
APR 6	3.23	89	67	51	41	30	25	18	16	10	0	0	0
APR 13	5.53	97	92	87	79	69	58	49	36	21	0	0	0
APR 20	(6.01)	98	95	91	85	78	68	57	41	13	0	0	0
APR 27													
MAY 4													
MAY 11													
MAY 18													
MAY 25													
JUN 1													
JUN 8													
JUN 15	(4.84)	93	87	81	61	53	43	31	18	0	0	0	0
JUN 22	3.15	86	61	49	38	27	17	15	11	4	0	0	0
JUN 29	4.67	92	86	80	70	57	49	40	25	6	0	0	0
JUL 6	4.14	92	81	72	61	50	38	25	18	3	0	0	0
JUL 13	3.42	89	78	59	52	42	28	18	9	1	0	0	0
JUL 20	5.75	95	92	89	84	76	65	50	21	0	0	0	0
JUL 27	5.49	96	91	88	81	74	62	49	21	0	0	0	0
AUG 3	5.13	93	83	78	72	62	54	40	28	9	0	0	0
AUG 10	(5.33)	95	89	85	79	70	59	44	26	8	0	0	0
AUG 17	3.83	91	77	60	48	43	39	35	27	20	3	0	0
AUG 24	4.63	96	89	81	71	64	48	34	26	12	0	0	0
AUG 31	4.00	92	82	70	63	49	35	30	22	11	1	0	0
SEP 7	4.65	97	89	83	78	63	53	41	30	10	0	0	0
SEP 14	3.09	80	68	53	48	38	27	22	19	11	0	0	0
SEP 21	3.76	90	72	64	55	49	42	31	22	10	3	0	0
SEP 28	5.50	97	95	91	85	81	73	62	46	26	1	0	0
OCT 5	5.67	98	96	93	90	81	75	63	48	19	0	0	0
OCT 12	2.50	84	54	42	38	32	28	22	14	9	0	0	0
OCT 19	3.55	89	78	73	71	68	63	54	37	20	2	0	0
OCT 26	2.00	70	56	51	44	36	28	16	6	0	0	0	0
NOV 2	1.30	61	49	34	28	23	17	14	7	0	0	0	0
NOV 9	2.35	79	56	54	41	36	32	27	16	2	0	0	0
NOV 16	1.46	49	34	26	25	25	20	13	6	0	0	0	0
NOV 23	1.04	69	50	29	16	10	6	0	0	0	0	0	0
NOV 30	(.70)	41	29	22	15	6	3	0	0	0	0	0	0
DEC 7	(.77)	44	27	16	9	0	0	0	0	0	0	0	0
DEC 14	(.97)	34	22	17	17	17	16	10	2	0	0	0	0
DEC 21	.28	13	4	0	0	0	0	0	0	0	0	0	0
DEC 28	(1.05)	55	41	29	26	5	5	5	0	0	0	0	0

SOLAR RADIATION DATA for: WEST YELLOWSTONE,MONTANA 1980

Montana Department of Natural Resources and Conservation
compiled by: Foulkes Engineering, Bozeman, Mt.

WEEK STARTING	DAILY AVERAGE KWH/SM/DAY	PER CENT TOTAL ENERGY ABOVE THRESHOLD (KW/SM)											
		>.1	>.2	>.3	>.4	>.5	>.6	>.7	>.8	>.9	>1.0	>1.1	>1.2
JAN 1	(.86)	55	27	16	16	9	4	0	0	0	0	0	0
JAN 6	1.83	61	48	43	38	31	22	19	14	7	1	0	0
JAN 13	1.85	68	35	32	28	26	25	19	12	9	1	0	0
JAN 20	(3.14)	91	70	58	55	51	43	35	28	20	2	0	0
JAN 27	(3.56)	88	69	60	57	52	44	40	28	17	10	0	0
FEB 3	4.46	82	72	67	63	58	56	48	38	29	19	7	0
FEB 10	2.55	81	48	35	33	29	24	23	20	11	6	0	0
FEB 17	2.92	93	81	71	53	40	30	25	18	16	13	4	0
FEB 24	(3.88)	94	76	71	67	57	42	29	27	21	17	9	0
MAR 2	(2.83)	94	72	57	38	31	21	13	8	7	3	0	0
MAR 9	2.90	85	65	47	39	35	30	24	16	12	7	3	0
MAR 16	4.96	97	87	73	60	53	50	40	36	27	18	6	1
MAR 23	4.77	96	90	77	68	59	45	35	27	21	11	2	0
MAR 30	4.29	94	90	73	62	55	45	34	23	14	6	1	0
APR 6	4.95	95	85	79	70	62	55	47	32	23	12	2	0
APR 13	5.92	97	93	88	80	71	64	53	46	32	3	0	0
APR 20	4.81	95	90	82	76	65	52	31	20	11	0	0	0
APR 27	5.29	96	92	86	81	71	62	45	30	16	0	0	0
MAY 4	3.62	88	69	56	50	44	34	25	13	7	1	0	0
MAY 11	3.44	94	81	63	50	36	22	14	11	4	0	0	0
MAY 18	(3.46)	93	80	65	58	46	37	21	11	5	0	0	0
MAY 25	3.81	93	80	69	55	44	35	30	13	5	0	0	0
JUN 1	3.25	89	72	58	46	31	22	16	8	4	0	0	0
JUN 8	(5.28)	96	92	87	81	69	57	46	32	4	0	0	0
JUN 15	4.44	93	82	72	65	56	48	35	17	0	0	0	0
JUN 22	5.21	96	89	85	76	66	57	45	27	2	0	0	0
JUN 29	3.60	90	78	62	54	47	39	27	14	3	0	0	0
JUL 6	4.95	95	89	81	71	63	51	39	27	1	0	0	0
JUL 13	4.56	95	86	79	72	62	50	41	21	1	0	0	0
JUL 20	5.35	96	91	87	80	71	60	47	32	2	0	0	0
JUL 27	5.04	94	86	83	75	70	62	51	33	11	0	0	0
AUG 3	5.85	97	94	91	84	77	67	56	44	16	1	0	0
AUG 10	4.75	91	80	72	67	59	51	41	28	10	0	0	0
AUG 17	4.39	85	76	67	62	57	48	40	29	19	2	0	0
AUG 24	(5.69)	97	93	89	84	79	69	61	45	18	0	0	0
AUG 31													
SEP 7	(2.22)	87	70	58	52	44	26	19	14	4	4	0	0
SEP 14	(5.44)	97	93	86	78	71	65	60	44	29	7	2	0
SEP 21	(5.43)	98	94	89	82	77	63	55	44	34	18	0	0
SEP 28	6.20	98	94	93	87	82	72	63	51	38	8	0	0
OCT 5	6.89	99	97	94	91	87	80	71	63	47	13	0	0
OCT 12	2.72	80	57	47	42	39	34	24	19	16	5	0	0
OCT 19	3.75	96	81	70	57	47	43	30	20	12	3	0	0
OCT 26	3.91	92	73	71	62	54	47	29	20	5	0	0	0
NOV 2	2.90	85	64	56	53	48	42	34	25	11	5	0	0
NOV 9	1.75	50	39	31	24	22	20	16	10	7	0	0	0
NOV 16	3.78	95	75	64	62	57	48	37	28	18	8	0	0
NOV 23	2.98	85	65	56	53	44	41	36	27	16	4	0	0
NOV 30	1.06	54	29	21	20	18	13	13	8	0	0	0	0
DEC 7	(3.30)	94	83	73	64	48	38	26	11	8	0	0	0
DEC 14	(2.34)	89	59	54	38	34	24	10	2	0	0	0	0
DEC 21	.71	39	16	13	6	5	5	2	0	0	0	0	0
DEC 28	(3.57)	97	91	76	68	61	47	42	28	7	0	0	0

MANUAL SOLAR MEASUREMENT STATIONS

1980 Average Radiation, kWh/m^2-day

STATION	JAN	FEB	MAR	APR	MAY	SEPT	OCT	NOV	DEC
Baker	3.63	3.16	4.37	5.21	5.17	5.02	5.11	3.83	2.03
Billings	2.49	2.66	5.23	5.41	5.65	4.44	5.53	2.94	1.97
Boulder	2.65	2.96	3.38	4.96	4.76	4.41	3.64	2.86	2.03
Broadus						4.88	4.39	4.29	2.67
Chester	3.42	3.07	4.05	3.32					
Conrad	2.99								
Deer Lodge	2.34								
Ekalaka	4.02	3.62				4.98	4.35	3.96	2.39
Eureka	2.01	1.25	2.25	3.82	3.48				
Great Falls	3.39								
Hobson	2.34	2.35	3.23	5.52	6.24	3.4		2.69	2.96
Malta	2.39	2.58	3.9	4.41	4.35	3.09	2.79	1.88	1.76
Missoula	3.89	2.15	3.22	3.25	6.13	4.37	4.47	2.41	1.83
Roundup	3.32	3.89	3.79	5.35	5.83	5.84	5.13	2.54	1.55
Townsend	2.94	1.96	3.44	3.95	6.48	5.98	4.22	1.89	1.37
Whitefish	2.13	1.5	3.79	4.24	4.47			.97	1.55
Wh.Sulphur Spgs.	3.14	3.25	5.33	5.92	6.2	5.01	5.86	2.46	1.97
Wolf Point	3.26	3.17	4.83	4.68					

CLOUDY DAY STATISTICS

NOTE: The number of data - days available are shown in parenthesis above each table.

ANACONDA, 1980

YEAR ROUND(312)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	20	5	5	0	0	0	0	0

HEATING SEASON(221)							
1	2	3	4	5	6	7	>7
18	5	5	0	0	0	0	0

BILLINGS, 1980

YEAR ROUND(351)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	22	8	2	0	1	0	0	0

HEATING SEASON(217)							
1	2	3	4	5	6	7	>7
20	8	2	0	1	0	0	0

BOZEMAN, 1980

YEAR ROUND(339)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	29	7	2	2	0	0	0	0

HEATING SEASON(210)							
1	2	3	4	5	6	7	>7
19	7	2	2	0	0	0	0

BROWNING, 1980

YEAR ROUND(136)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	9	2	1	0	0	0	0	0

HEATING SEASON(103)							
1	2	3	4	5	6	7	>7
8	2	0	0	0	0	0	0

BUTTE, 1980

YEAR ROUND(357)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	21	5	1	1	0	0	0	0

HEATING SEASON(231)							
1	2	3	4	5	6	7	>7
15	5	1	1	0	0	0	0

CHOTEAU, 1980

YEAR ROUND(331)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	29	1	4	0	0	0	0	1

HEATING SEASON(218)							
1	2	3	4	5	6	7	>7
21	1	4	0	0	0	0	1

COLSTRIP, 1980

YEAR ROUND(311)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	31	4	3	0	0	0	0	0

HEATING SEASON(211)							
1	2	3	4	5	6	7	>7
27	4	3	0	0	0	0	0

DILLON, 1980

YEAR ROUND(342)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	22	5	1	0	0	0	0	0

HEATING SEASON(225)							
1	2	3	4	5	6	7	>7
18	5	1	0	0	0	0	0

ENNIS, 1980

YEAR ROUND(228)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	12	4	0	0	0	0	0	0

HEATING SEASON(113)							
1	2	3	4	5	6	7	>7
6	3	0	0	0	0	0	0

FORT BENTON, 1980

YEAR ROUND(349)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	21	6	3	1	1	0	0	1

HEATING SEASON(215)							
1	2	3	4	5	6	7	>7
16	6	3	1	1	0	0	1

GLASGOW, 1980

YEAR ROUND(353)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	20	4	2	2	0	0	0	0

HEATING SEASON(226)							
1	2	3	4	5	6	7	>7
18	4	2	2	0	0	0	0

GLENDIVE, 1980

YEAR ROUND(252)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	18	3	1	2	0	0	0	0

HEATING SEASON(176)							
1	2	3	4	5	6	7	>7
16	2	1	2	0	0	0	0

GREAT FALLS, 1980

YEAR ROUND(362)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	30	4	6	0	0	0	0	1

HEATING SEASON(228)							
1	2	3	4	5	6	7	>7
23	4	6	0	0	0	0	1

HAMILTON, 1980

YEAR ROUND(328)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	23	6	1	0	0	1	0	1

HEATING SEASON(224)							
1	2	3	4	5	6	7	>7
19	6	1	0	0	1	0	1

HAVRE, 1980

YEAR ROUND(318)									HEATING SEASON(192)							
CLOUDY DAYS	1	2	3	4	5	6	7	>7	1	2	3	4	5	6	7	>7
OCCURENCES	24	6	1	1	0	0	0	1	19	6	1	1	0	0	0	1

HELENA, 1980

YEAR ROUND(268)									HEATING SEASON(205)							
CLOUDY DAYS	1	2	3	4	5	6	7	>7	1	2	3	4	5	6	7	>7
OCCURENCES	23	6	2	0	0	0	0	1	16	6	2	0	0	0	0	1

JORDAN, 1980

YEAR ROUND(332)									HEATING SEASON(226)							
CLOUDY DAYS	1	2	3	4	5	6	7	>7	1	2	3	4	5	6	7	>7
OCCURENCES	17	10	2	0	0	0	0	0	15	9	2	0	0	0	0	0

KALISPELL, 1980

YEAR ROUND(345)									HEATING SEASON(212)							
CLOUDY DAYS	1	2	3	4	5	6	7	>7	1	2	3	4	5	6	7	>7
OCCURENCES	21	12	1	1	0	0	0	2	17	9	1	1	0	0	0	2

LEWISTOWN, 1980

YEAR ROUND(362)									HEATING SEASON(228)							
CLOUDY DAYS	1	2	3	4	5	6	7	>7	1	2	3	4	5	6	7	>7
OCCURENCES	28	6	2	0	0	0	1	0	22	6	2	0	0	0	1	0

LIBBY, 1980

YEAR ROUND(339)									HEATING SEASON(207)							
CLOUDY DAYS	1	2	3	4	5	6	7	>7	1	2	3	4	5	6	7	>7
OCCURENCES	13	13	2	3	1	1	2	1	7	10	2	3	1	1	2	1

LIVINGSTON, 1980

YEAR ROUND(263)									HEATING SEASON(187)							
CLOUDY DAYS	1	2	3	4	5	6	7	>7	1	2	3	4	5	6	7	>7
OCCURENCES	22	5	3	1	1	0	0	0	19	5	3	1	1	0	0	0

MILES CITY, 1980

YEAR ROUND(323)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	27	4	3	0	0	0	0	0

HEATING SEASON(189)							
1	2	3	4	5	6	7	>7
20	4	3	0	0	0	0	0

MISSOULA, 1980

YEAR ROUND(363)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	27	9	4	1	1	1	0	1

HEATING SEASON(231)							
1	2	3	4	5	6	7	>7
22	8	3	1	1	1	0	1

PLENTYWOOD, 1980

YEAR ROUND(354)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	23	9	0	0	0	0	0	0

HEATING SEASON(221)							
1	2	3	4	5	6	7	>7
21	6	0	0	0	0	0	0

POLSON, 1980

YEAR ROUND(362)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	33	13	2	1	1	1	0	1

HEATING SEASON(229)							
1	2	3	4	5	6	7	>7
26	12	2	1	1	1	0	1

RED LODGE, 1980

YEAR ROUND(364)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	24	8	1	0	0	0	0	0

HEATING SEASON(230)							
1	2	3	4	5	6	7	>7
21	7	1	0	0	0	0	0

THOMPSON FALLS, 1980

YEAR ROUND(273)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	18	6	5	2	2	0	0	1

HEATING SEASON(172)							
1	2	3	4	5	6	7	>7
13	6	5	2	2	0	0	1

WEST YELLOWSTONE, 1980

YEAR ROUND(336)								
CLOUDY DAYS	1	2	3	4	5	6	7	>7
OCCURENCES	16	4	2	3	1	1	0	1

HEATING SEASON(222)							
1	2	3	4	5	6	7	>7
12	4	2	3	1	1	0	1

1980 CLEAR DAY COMPARISONS

Station Name	*Clear Days	**Deviation % Orig.	Adj.	Class
Anaconda	27	5.9	1.7	II
Billings	69	10.0	2.1	I
Bozeman	56	5.9	1.9	I
Browning	25	6.8	1.3	I
Butte	46	7.6	2.2	I
Choteau	50	4.6	1.9	II
Colstrip	51	3.26	3.18	I
Dillon	49	2.7	2.5	I
Ennis	29	2.7	1.88	I
Fort Benton	61	5.7	1.5	II
Glasgow	66	2.8	1.7	II
Glendive	39	1.8	1.8	I
Great Falls	58	4.0	1.8	II
Hamilton	45	4.2	1.6	I
Harlowton	54	1.8	1.2	I
Havre	40	4.3	3.3	II
Helena	24	2.0	1.8	I
Jordan	77	13.0	2.3	II
Kalispell	29	2.0	1.6	I
Lewistown	50	1.4	1.4	I
Libby	30	3.1	1.6	II
Livingston	31	6.4	2.5	III
Miles City	79	4.4	1.9	II
Missoula	26	4.7	3.0	I
Plentywood	59	4.2	2.1	II
Polson	51	2.7	1.4	I
Red Lodge	48	7.1	3.1	II
Sidney	42	5.7	2.0	III
Thompson Falls	21	3.6	2.7	III
West Yellowstone	38	4.3	1.8	II

* A "clear day" is a day that is clear for several hours around solar noon.

** Average absolute value of deviation for all clear days.